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Hard Red Spring Wheat Quality Report

1997
APR 08

1997 Crop

Physical, Chemical, Milling, & Baking Characteristics



Hard Red Spring and Durum Wheat Quality Laboratory

United States Department of Agriculture

Agricultural Research Service

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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
NORTHERN PLAINS AREA
RED RIVER VALLEY AGRICULTURAL RESEARCH CENTER (RRVARC)

in cooperation with

STATE AGRICULTURE EXPERIMENT STATIONS

QUALITY EVALUATION OF HARD RED SPRING WHEAT CULTIVARS

1997 CROP^{1/}

by

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^{1/} This report represents cooperative investigations on the quality of Hard Red Spring Wheat cultivars from the 1997 crop. Some of the results presented have not been sufficiently confirmed to justify variety release. Confirmed results will be published through established channels. Cooperators submitting samples for analysis have been given analytical data prior to release of this report. This report is primarily a tool for use by cooperators and their official staff and to those individuals having direct and special interest in the development of agricultural research programs.

This report was compiled by the Agricultural Research Service, U. S. Department of Agriculture. Special acknowledgment is made to the North Dakota State University for use of their facilities and the services provided in support of these studies. The report is not intended for publication and should not be referenced in either literature citations or quoted in publicity and advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

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INTRODUCTION

Samples of standard cultivars and experimental lines of hard red spring wheat grown in cooperative experiments in the spring wheat regions of the United States are milled each year in the USDA/ARS Wheat Quality Laboratory. Wheat and the corresponding flours are evaluated for physical and chemical properties and the flours are baked to determine bread characteristics. The purpose of this report is to present quality data on hard red spring wheat from the 1997 crop to cooperators and other interested parties.

The evaluation of wheat quality involves the analysis of kernel characteristics, milling performance, and baking performance. Methods are described on pages 4-6.

SOURCE OF 1997 HARD RED SPRING WHEAT

The cooperating agencies and stations conducting the 1997 spring wheat nursery experiments are published in an annual report by R. H. Busch^{4/}. Tests were performed on 1271 samples that were received from the following 19 stations in five states. Data presented in this report represents the evaluation of spring wheat from Advanced, Field Plot, Special, Preliminary, and Uniform Regional Nurseries (URN). The map on page 3 shows the URN stations. Three hundred twenty-two additional wheat samples were evaluated for milling and baking characteristics and were not included in this report.

Minnesota Agricultural Experiment Station

Crookston, Minneapolis, Morris, North, St. Paul, South

Montana Agricultural Experiment Station

Bozeman, Havre, Sidney

North Dakota Agricultural Experiment Station

Carrington, Dickinson, Langdon, McKenzie County, Minot, Williston

South Dakota Agricultural Experiment Station

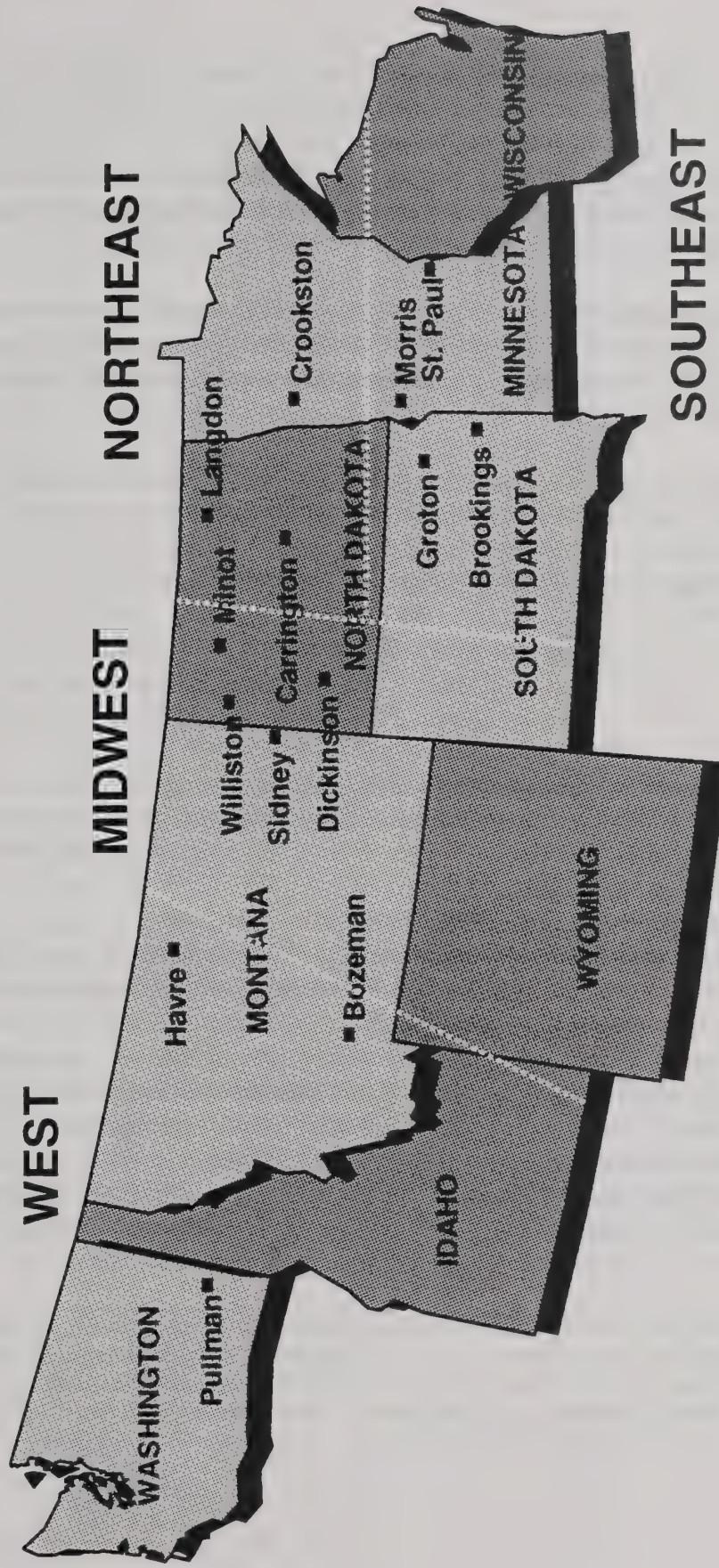
Brookings, Day County, Groton,

Washington Agricultural Experiment Station

Pullman

^{4/} Busch, R. H. Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1997. Agricultural Research Service, U. S. Department of Agriculture and State Agricultural Experiment Station, St. Paul, MN.

**Hard Red Spring Wheat Uniform Regional Nurseries
1997 Crop Year**



METHODS^{5/}

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry wheat subsequent to the removal of dockage using a Carter-Day dockage tester.

1000-Kernel Weight - The weight of 1000 kernels was determined either by a Seedburo seed counter from the number of kernels in 10 g samples of cleaned, hand-picked wheat or by the Single Kernel Characterization System.

Kernel Size - The percentages of the size of kernels (large, medium and small) were determined using a wheat sizer as described by Shuey^{6/}.

The sieves of the sizer were clothed as follows:

Top Sieve - Tyler #7 with 2.92 mm opening
Middle Sieve - Tyler #9 with 2.24 mm opening
Bottom Sieve - Tyler #12 with 1.65 mm opening

Milling - The samples were cleaned by passing the wheat through a Carter-Day dockage tester. The clean samples were pretempered to 12.5% moisture for at least 72 hours, then tempered to 15.5% moisture ca. 16-20 hours before milling.

Samples of wheat from the Uniform Regional, Advanced, Special, and Preliminary nurseries were milled in Brabender Quadrumat Senior mill heads. The stock from the break rolls was sifted for 60 sec on a strand sifter using #35 and #80 Tyler sieves. The throughs of the #80 sieve were classified as break flour; the overs of the #35 sieve were classified as bran; and the overs of the #80 sieve were passed through the reduction section. The reduction stock was sifted for 60 sec on a #80 Tyler sieve. The throughs were classified as reduction flour and the overs as shorts. The break and reduction flours were combined and classified as patent flour.

5/ Mention of a trademark name or a proprietary product does not constitute a guarantee or warranty of the product by the U. S. Department of Agriculture, and does not imply its approval to the exclusion of other products that may also be suitable.

6/ Shuey, William C. A Wheat Sizing Technique for Predicting Flour Milling Yield. Cereal Science Today 5:71-72,75 (1960).

Wheat from the Field Plots were milled in a Buhler continuous experimental mill. The Buhler mill had been slightly modified for better comparison with commercial milling operations. Break scalping sieves were clothed with #54 stainless steel wire. Reduction scalping sieves were clothed with #58, #66 and #105 stainless steel wire for the first, second and third reductions, respectively. All flour sieves were clothed with #135 stainless steel wire.

The six flour streams from the Buhler mill were combined and classified as patent flour. The extraction of good milling wheat using this flow is approximately 68% and is comparable to commercial long patent flour. At a 68% flour extraction, changes in flour ash are most sensitive to changes in percent extraction.

Hardness Test - Wheat hardness scores were determined according to AACC Method 39-70A (1995). The procedure involved grinding the wheat samples in a Udy grinder and obtaining reflectance data from a Technicon 450 near infrared analyzer. Wavelengths at 1680 nm and 2230 nm were used. Hard red spring wheat kernels generally have NIR scores between 60 and 85.

Protein Content - Wheat and flour proteins were determined either by NIR reflectance or by the combustion method (AACC Method 46-30, 1995). Nitrogen values were multiplied by 5.7 to calculate protein values, which were reported on a 14%mb.

Mineral or Ash Content - Wheat or flour ash was determined by measuring the residual weight of minerals remaining after incinerating the sample for approximately 16 hours at 575°C. The results were reported as percentages of the sample weights. Values were reported on a 14%mb.

Mixograph Analysis - Mixograph scores were determined from 30 g of flour (as is mb) and 20 cc of water. The sensitivity spring setting was set at 10. Water absorption was adjusted according to the peak height of the mixogram. Reference mixogram patterns (page 9) illustrate different dough characteristics. Arbitrary numbers are assigned to mixograms to simplify the classification. The larger numbers indicate stronger gluten characteristics of the dough.

Baking Formula and Procedure

100% flour	3% Non-fat Dry Milk
2% salt	1% instant dry yeast
5% sugar	2% shortening (Crisco, melted) - 100 g loaves
	1% shortening (Crisco, melted) - 25 g loaves

Flour was mixed to optimum dough development in National Manufacturing mixers: the micro mixer for 25 g samples and the 100 g mixer for 100 g samples. Ascorbic Acid (40 ppm) for oxidation and Fungal Amylase (Doh-Tone)(15SKB units) for enzymatic supplement were added to each sample. Dough was moulded in a Roll-Er-Up moulder. Samples undergo 3 hour fermentation, 1 hour proof, and a 20 minute bake time at 220° C.

Absorption - The amount of water, expressed as percent of flour, required for optimum dough consistency.

Dough Characteristics (DC) - Empirical scores ranging from 0-6 were used to classify dough as sticky-weak (0), pliable (2), elastic (3), or bucky (6). Dough should exhibit good elastic/extensible properties for optimum handling and machining.

Crumb Color (CC) - Determined by comparing the internal crumb color of the sample bread with the crumb color of a baking standard. The standard flour was an equal blend of the variety Grandin grown at Minot, ND and Brookings, SD. Empirical scores ranging from 0-6 were used to classify crumb color as yellow (0), gray (2), dull (3), creamy (5), or bright white (6).

Crumb Grain (CG) - Empirical scores ranging from 0-6 were used to classify crumb grain as irregular, thick (0), open, thick (3), or fine (6).

Crumb Texture (CT) - Empirical scores ranging from 0-6 were used to classify crumb texture as harsh (0), coarse (3), or silky (6).

Loaf Volume - The volume (cc) of the baked loaf was determined by rapeseed displacement.

EXPERIMENTAL RESULTS - 1997 CROP

UNIFORM REGIONAL NURSERY (URN) TRIALS

Spring wheat cultivars and experimental lines included in the URN entries are listed on page 8.

A total of 544 URN samples (Tables 1-14) were received from 14 stations in 5 states. Twenty-nine selections were experimental lines. Commercial cultivars included Butte 86 (used as the standard for comparison), Chris, Era, Marquis, and Stoa.

ADVANCED YIELD TRIALS - 229 samples from 8 stations, Table 15-22.

FIELD PLOTS - 39 samples from 4 stations, Table 23-26.

SPECIAL NURSERIES - 167 samples from 3 stations, Table 27-30.

PRELIMINARY YIELD TRIALS - 292 samples from 3 stations, Table 31-74.

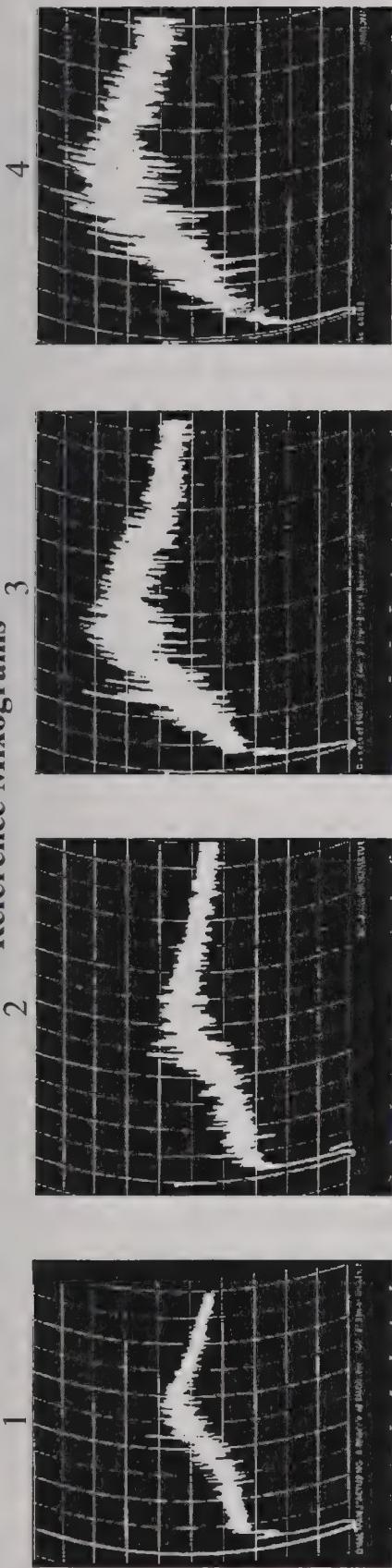
**1997 UNIFORM REGIONAL HARD RED SPRING WHEAT
PERFORMANCE NURSERY**

List of Entries

Entry No.	Entry	CI No. or Pedigree	Year Entered	Source
1.	Marquis	3651	1929	CAN
2.	Chris	13751	1969	MN
3.	Era	13986	1972	MN
4.	Stoa		1987	ND
5.	Butte 86		1987	ND
6.	SD3249	SD3080/Dalen	1996	SD
7.	SD8108	SD8061/SD3118	1996	SD
8.	SD3219	SD3078/Grandin	1996	SD
9.	SD8119	SD8072/SD3105	1997	SD
10.	SD3310	SD8072/SD3067	1997	SD
11.	MN93413	Ning 8331/MN87029//MN89068	1996	MN
12.	SBE0050	W8814/Norak	1995	MN
13.	MN94200	MN89028/Grandin	1997	MN
14.	MN94055	BR 23 (Brazil) / MN90071	1997	MN
15.	SBF0402	Erik/SBY0430A	1995	NDRF
16.	ND691	Stoa*2/Carifen//Amidon	1996	ND
17.	ND694	KEENE/ND674	1996	ND
18.	ND695	IAS20*4/H567.71//Stoa/3/ND674	1996	ND
19.	ND704	Grandin*2//Colonias/Amidon	1997	ND
20.	MT9433	MT8808/Marberg	1996	MT
21.	MT9508	Fortuna/Pondera//Pondera	1997	MT
22.	B91-0228	BPC'S'/Junin//B.Chme	1997	AGRIP
23.	N93-0119	N88-0436/Dalen	1997	AGRIP
24.	N93-0136	C84-0057/W87-0069//Bergen	1997	AGRIP
25.	N93-0211	N86-1076/Dalen	1997	AGRIP
26.	Sharpshooter	Sharp/Sumai#3	1996	WPB
27.	BZ 987-331		1997	WPB
28.	T801.93	Chilero/Bom	1996	TRI
29.	T1052	Victoria INTA//Junin/Buck Pucara Sib	1997	TRI
30.	NX95-5106		1997	HYB
31.	SDM50005	VANCE/SUNSTAR1	1996	SUN
32.	WA7802	HF820049/WA007301//Tecumseh/ K8405055	1997	WA
33.	TX92U2317	Agatha*4/Yecora 70//TX81V6603	1997	TX
34.	BW693		1997	SASK

* Solid stem lines for sawfly resistance,

Reference Mixograms



DISCUSSION

The following discussion presents the basic techniques and criteria used in the quality evaluation of the Hard Red Spring Wheat cultivars.

For the Uniform Regional Nursery samples, each quality variable (except for mix time) per wheat variety or experimental line was averaged within each hard red spring wheat region (Northeast, Southeast, Midwest, and West). Values that are bolded/underlined indicate that averages are higher than the standard cultivar, Butte 86. For wheat and flour ash, bolded/underlined values are lower than the standard cultivar since high ash content is a negative factor affecting flour color.

All samples were compared with a milling and baking standard representative of the crop year. Environmental conditions within a growing location can affect the agronomic factors of the wheat, and subsequently the milling and baking factors. A wheat cultivar may be low in protein content because of the environmental growing conditions, but may contain large plump kernels with good milling characteristics. Wheat grown in one environment may exhibit weak gluten characteristics that are inconsistent with the same cultivar grown in another environment. Preferably, a commercial cultivar of wheat should have tolerance (protein stability) to a wide range of environmental conditions.

Kernel Characteristics are important for determining the initial value of wheat. Poor kernel characteristics could disqualify an experimental line from further consideration in a breeding program. High test weight is an indicator of grain soundness. Plump kernels are desirable because of the high ratio of endosperm to bran. Low 1000-kernel weight and small kernel size distribution affect milling performance and flour yield. High wheat ash affects the ash content of the flour. Wheat protein quality and quantity are important characteristics when comparing cultivars that are grown at the same location. Low protein wheat impacts bread baking performance.

Milling Performance is an important characteristic of spring wheat. Low extraction and high flour ash are major factors that are unacceptable in commercial milling operations. As a general rule, an increase of 0.01% in flour ash content is equivalent to an increase of approximately 2% in flour extraction.

Milling Characteristics: Different milling techniques are required for hard and soft wheat. Each type of wheat requires different roll pressure, clothing, sifter surface, and tempering to be milled properly. Blending wheat with different hardness characteristics is undesirable and impacts the milling operation. Adjustments would either have to be made in the mill flow or in the tempering procedure to compensate for differences in kernel hardness. During the milling operation, the amount of flour protein recovered from wheat is important. High protein wheat yielding low protein flour is undesirable.

Mixogram Patterns are important for estimating the strength and potential mixing tolerance of flour. From the reference mixogram patterns (page 9), patterns 4 - 8 indicate flours with optimum mixing tolerance and gluten strength. Mixogram patterns 9 - 10 indicate flours with long mixing times, and strong gluten characteristics, whereas, patterns 1 - 3 indicate flours with weak gluten characteristics and short mixing times. Both the pattern and length of the curve should be considered in the evaluation. Abnormal curves, such as sway-back or long initial times to incorporate water, indicate undesirable characteristics.

Baking evaluation takes into account flour water absorption, mixing time, dough characteristics, loaf volume, crumb texture, and machinability. Flour with low water absorption is undesirable. Flour with a short mix time is undesirable and exhibits weak gluten characteristics.

The crumb grain or appearance of the interior of the loaf indicates the structural integrity during baking. Crumb grain is likely related to gluten protein properties (quantity and quality).

Bread loaf volume indicates the potential strength of dough. Optimum loaf volume demonstrates the capacity or lack thereof, for the dough to expand under pressure and to contain the entrapped gases during expansion. Weak dough tends to collapse and yields bread with low loaf volume or yields bread with large volume containing large holes in the interior. Low protein flour produces dough with undesirable elasticity and extensibility to expand adequately during fermentation or baking and thus yields bread with low loaf volume. Tough or bucky dough is bound too tightly for adequate expansion of the gases, which results in bread with low loaf volume. Loaf volume is a characteristic that is likely related to gluten functionality.

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 1

LOCATION: Carrington, ND	SKWCS HARDNESS DISTRIBUTION										WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		LOAF		
	VARIETY										A	B	C	D	INDEX	HARDNESS	PRO ASH	EXT	PRO ASH	ABS	PAT	ABS	TIME	C	C	G	T	VOL	Rating
	(lb/bu)	KWT	LG	SM	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(min)	(cc)						
Marquis	59.8	28.9	52	3	1	10	34	55	66.1	65	14.1	1.85	59.5	12.9	0.46	55.8	2	55.8	3.75	2	3	3	6	178					
Chris	59.6	26.8	56	4	2	7	23	68	70.6	69	14.8	1.79	66.4	14.1	0.44	56.5	2	56.5	3.25	3	3	3	6	186					
Era	57.5	26.4	46	4	3	6	24	67	66.8	67	13.4	1.76	62.5	12.0	0.43	51.6	2	51.6	3.50	2	5	3	5	179					
Stoa	58.0	27.4	47	6	2	5	16	77	72.6	65	14.4	1.90	59.1	13.6	0.40	57.3	3	57.3	3.75	3	5	4	6	201					
Butte 86	59.4	32.1	68	2	10	27	29	34	55.0	52	14.5	1.84	57.0	14.1	0.41	57.6	3	57.6	3.75	3	4	3	5	196					
SD3249	62.6	28.8	54	4	4	11	30	55	63.8	60	14.1	1.88	60.4	13.5	0.39	56.9	3	56.9	4.00	2	4	4	6	185					
SD8108	62.0	29.5	62	2	4	17	35	44	61.4	60	14.1	1.80	55.1	13.1	0.38	55.5	3	55.5	4.25	3	4	4	4	183					
SD3219	60.6	28.5	64	2	1	3	22	74	74.6	66	14.1	1.76	60.6	13.1	0.40	59.3	4	59.3	3.25	3	3	4	6	192					
SD8119	60.1	30.9	57	1	2	7	27	64	65.3	76	14.3	1.83	61.1	13.0	0.42	57.6	3	57.6	3.50	3	3	5	5	187					
SD3310	59.0	29.2	49	3	3	12	30	55	63.4	63	15.2	1.81	59.6	14.7	0.40	59.0	2	59.0	3.00	3	3	5	6	208					
MN93413	58.3	27.6	47	3	4	11	30	55	63.0	56	13.9	1.76	53.1	13.1	0.43	55.5	3	55.5	5.50	3	3	3	5	187					
SB0050	59.0	30.8	56	4	3	19	40	38	58.9	64	13.8	1.78	58.3	12.8	0.44	54.3	2	54.3	4.00	3	4	3	5	188					
MN94200	60.1	32.9	59	2	8	28	35	29	51.7	51	14.4	1.86	53.8	14.0	0.40	56.5	2	56.5	3.25	2	5	3	5	182					
MN94055	59.9	30.0	58	3	5	15	27	53	62.4	62	13.6	1.70	54.5	13.1	0.41	52.2	2	52.2	3.25	3	4	5	5	188					
SBF0402	59.3	29.5	56	4	3	9	32	56	65.5	61	13.2	1.70	55.7	12.3	0.41	55.0	2	55.0	4.00	2	3	3	5	203					
ND691	59.0	26.8	30	6	2	4	23	71	70.0	64	13.6	1.72	53.2	13.0	0.42	55.8	3	55.8	4.50	3	3	3	6	198					
ND694	59.8	30.2	66	4	5	22	35	38	56.8	53	13.9	1.78	56.0	13.2	0.38	55.8	3	55.8	4.50	3	3	3	5	184					
ND695	59.1	29.8	57	3	3	10	30	57	65.6	62	14.6	1.67	57.9	13.8	0.40	55.5	2	55.5	3.75	3	3	3	6	208					
ND704	60.8	29.8	69	2	0	7	26	67	68.8	75	14.5	1.67	63.4	14.0	0.38	57.9	3	57.9	4.00	3	3	3	6	196					
MT9433	58.4	28.9	51	3	6	23	68	72.1	76	14.9	1.80	61.3	13.9	0.43	58.6	3	58.6	3.50	3	3	5	6	198						

1997 Spring Uniform Regional Nursery

USDA / ARS WHEAT QUALITY LAB

Table 1 (cont)

LOCATION: Carrington, ND

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS			NIR NESS	WHEAT			FLOUR			MIX			BAKE			MIX			TIME			D			C			C			LOAF									
					DISTRIBUTION			HARD- NESS				PRO (14% mb)			EXT			PRO ASH (14% mb)			ABS			PAT			ABS			(min)			C			C			G			T			VOL (cc)			
					A	B	C	D	INDEX																																							
MT9508	59.9	30.5	50	5	10	23	29	38	54.9	54	14.5	1.80	55.7	13.9	0.38	56.9	2	56.9	3.25	3	6	5	6	201																								
B91-0228	59.4	28.4	42	3	2	6	26	66	69.6	64	14.8	1.88	53.5	14.1	0.43	57.3	3	57.3	4.00	2	5	3	6	195																								
N93-0119	59.8	29.8	73	3	1	1	15	83	84.1	86	14.7	1.72	54.4	13.2	0.42	56.9	2	56.9	3.00	2	3	3	6	186																								
N93-0136	58.0	28.9	54	3	3	14	33	50	63.0	59	13.9	1.89	55.3	12.8	0.40	52.9	2	52.9	4.00	2	3	3	5	181																								
N93-0211	58.0	27.8	47	5	6	16	25	53	63.0	64	14.7	1.85	54.0	13.9	0.41	56.5	3	56.5	3.00	3	5	5	6	192																								
Sharphoose	60.1	28.1	56	4	4	15	31	50	62.3	61	14.0	1.74	52.8	13.8	0.37	57.3	3	57.3	3.00	3	3	5	6	191																								
BZ987-331	57.1	27.4	47	4	3	7	23	67	66.5	64	14.6	1.94	50.2	14.1	0.43	57.6	3	57.6	3.50	3	3	3	6	202																								
T801.93	56.9	30.8	44	4	3	13	35	49	60.0	59	14.0	1.79	48.4	12.9	0.49	57.6	3	57.6	3.50	3	4	3	6	196																								
T1052	57.1	28.3	47	4	4	9	27	60	68.2	74	14.2	1.77	51.2	13.3	0.44	57.9	3	57.9	3.50	3	3	3	6	201																								
NX95-5106	57.9	28.6	41	4	7	16	33	44	58.6	59	14.8	1.88	46.9	14.6	0.44	58.2	3	58.2	3.00	3	5	3	6	202																								
SDM50005	56.6	28.0	47	4	6	18	29	47	59.1	57	14.3	1.97	44.2	14.0	0.42	57.9	2	57.9	3.25	3	3	3	6	190																								
WA7802	56.2	28.7	43	5	3	16	32	49	59.2	61	14.2	1.78	50.5	13.9	0.41	57.3	3	57.3	4.00	3	4	4	6	187																								
TX92U2317	57.0	31.2	49	4	3	10	33	54	62.6	63	13.8	1.82	44.0	12.9	0.47	57.6	3	57.6	4.00	3	4	4	6	188																								
BW693	56.1	30.4	63	2	10	24	32	34	54.1	55	14.6	1.83	40.9	14.4	0.43	60.5	4	60.5	3.50	3	3	5	6	191																								

DISTRIBUTION: A= % Soft

B= % Sem-Soft

C= % Sem-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

PLIABLE

GREY

HARSH

ELASTIC

DULL

OPEN, THICK

CREAMY

COARSE

BUCKY

BRIGHT WHITE

FINE

SILKY

0	3	6
DOUGH CHAR (DC):	STICKY-WEAK	ELASTIC
CRUMB COLOR (CC):	YELLOW	DULL
CRUMB GRAIN (CG):	IRREG, THICK	OPEN, THICK
CRUMB TEXTURE (CT):	HARSH	COARSE

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 2

VARIETY	LOCATION: Crookston, MN						FARGO, ND												
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS		WHEAT		FLOUR		MIX		BAKE	MIX	D	C	C	LOAF VOL (cc)	
					HARD-	DISTRIBUTION	PRO (14% mb)	ASH (14% mb)	EXT	PRO (%)	ASH (%)	ABS	PAT	ABS	TIME (min)	C	C	G	T
Marquis	56.5	26.5	54	5	2	9	26	63	65.5	60	14.7	1.98	40.5	14.0	0.57	58.2	3	3	3
Chris	57.3	26.5	59	5	4	8	26	62	65.5	69	15.3	1.90	49.5	15.2	0.46	59.3	3	3	3
Era	57.4	26.2	37	8	3	10	24	63	64.5	60	13.8	1.81	60.6	12.9	0.47	56.2	2	3	5
Stoa	56.6	29.3	48	6	3	8	26	63	63.8	70	15.5	1.86	54.9	14.8	0.41	61.1	4	5	6
Butte 86	57.8	30.3	68	6	2	6	27	65	65.3	72	15.1	1.73	60.5	13.8	0.41	59.3	2	3	3
SD3249	61.0	29.3	64	3	2	13	33	52	63.1	65	15.3	1.75	59.5	14.2	0.37	59.3	3	5	5
SD8108	57.4	28.7	54	6	6	20	37	37	55.1	56	14.4	1.78	60.0	13.5	0.38	57.6	3	3	3
SD3219	60.9	30.6	67	3	1	7	27	65	63.7	67	14.1	1.72	62.9	12.9	0.43	55.3	2	3	3
SD8119	56.8	30.2	69	2	1	4	30	65	64.4	76	14.7	1.83	61.0	13.9	0.46	59.6	3	3	3
SD3310	60.5	30.7	74	2	8	26	39	27	52.2	58	14.7	1.67	60.1	14.4	0.38	58.6	3	5	5
MN93413	57.9	32.3	68	3	1	7	33	59	64.3	83	13.2	1.72	57.9	11.8	0.48	56.5	2	3	3
SBE0050	58.9	29.5	49	4	1	7	30	62	64.5	66	14.3	1.81	57.2	13.5	0.48	57.6	3	5	5
MN94200	58.2	26.5	51	6	1	4	15	80	74.3	76	14.1	1.75	56.3	13.2	0.42	56.9	2	4.00	3
MN94055	59.1	32.4	68	3	4	15	35	46	59.3	54	14.2	1.67	50.9	13.4	0.39	55.0	2	3.00	2
SBF0402	58.6	31.2	71	2	6	30	32	32	53.3	61	15.6	1.74	52.6	14.8	0.36	56.9	3	5.00	3
ND691	58.6	27.5	51	4	1	2	12	85	80.5	84	14.9	1.68	63.6	14.2	0.42	59.6	4	4.50	3
ND694	61.0	29.7	72	2	0	5	24	71	69.0	72	16.1	1.79	61.9	15.0	0.38	59.3	3	3.25	3
ND695	58.7	30.3	47	3	2	10	28	60	65.7	62	15.6	1.78	60.6	15.3	0.38	58.6	3	5.00	3
ND704	58.6	28.1	61	4	2	5	22	71	67.0	72	14.7	1.75	63.4	13.7	0.37	56.9	3	4.25	3
MT9433	57.3	27.5	48	8	1	3	13	83	73.4	82	15.3	1.99	59.0	14.0	0.48	58.2	3	3.00	3

1997 Spring Uniform Regional Nursery

USDA / ARS

LOCATION: *Crookston, MN*

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS			NIR NESS	WHEAT (14% mb)	FLOUR EXT (%)	FLOUR PRO ASH (14% mb)	FLOUR ABS (%)	MIX PAT	MIX ABS	BAKE TIME (min)	MIX TIME	D C G T VOL (cc)	LOAF Rating----- (cc)			
					A	B	C	D	INDEX	HARD- NESS														
MT9508	55.3	28.0	22	12	12	25	32	31	53.1	41	14.0	1.78	48.1	13.8	0.41	56.9	2	54.6	2.50	2	3	5	202	
B91-0228	59.5	29.1	42	7	1	4	19	76	70.0	77	14.4	2.01	61.4	13.3	0.45	57.3	3	55.0	6.00	3	3	3	6	202
N93-0119	56.8	28.0	41	8	1	4	17	78	72.4	80	15.3	2.02	53.5	14.0	0.50	58.6	3	56.7	4.00	3	4	3	6	201
N93-0136	60.5	29.5	65	3	3	12	34	51	60.9	62	13.5	1.75	62.0	12.5	0.43	53.8	2	52.0	4.00	2	1	3	5	175
N93-0211	59.1	28.6	59	2	2	9	21	68	68.1	64	15.1	1.85	57.4	13.9	0.42	57.3	3	55.0	4.00	3	3	5	5	203
Sharpshoote	61.2	31.0	46	3	7	29	36	28	52.8	57	14.5	1.62	59.2	14.2	0.37	57.3	2	55.0	2.50	2	3	3	4	185
BZ987-331	50.9	29.2	51	6	17	30	32	21	48.2	28	14.0	2.00	45.4	13.3	0.53	59.0	3	57.2	5.00	3	1	3	6	213
T801.93	55.1	33.0	63	4	3	12	34	51	59.6	63	14.6	2.00	54.5	13.4	0.61	59.3	4	57.2	5.00	3	3	3	6	210
T1052	60.1	31.1	49	4	5	16	35	44	56.5	61	15.2	1.91	50.7	14.5	0.45	56.9	3	54.6	6.00	2	5	3	6	188
NX95-5106	55.9	29.8	54	4	5	12	35	48	60.2	52	14.6	1.88	50.2	14.2	0.47	56.9	3	54.6	6.25	3	4	4	6	207
SDM50005	56.6	28.1	49	7	9	22	34	35	54.2	49	14.1	1.79	49.3	13.8	0.43	55.5	2	53.5	3.50	2	4	3	5	178
WA7802	53.4	28.8	48	5	8	23	36	33	54.4	49	14.2	1.92	51.9	13.5	0.46	55.6	3	53.5	4.00	2	4	3	6	189
TX92U2317	56.2	27.6	34	7	1	5	24	70	65.4	63	13.3	1.76	50.2	12.1	0.46	53.8	2	52.0	4.50	2	3	5	6	187
BW693	57.2	31.5	74	4	7	27	37	29	52.8	74	15.2	1.77	57.7	14.7	0.42	57.9	3	55.8	2.25	3	4	3	6	196

DISTRIBUTION: A = % Soft

DOLIGHT CHAR (OOC)

ELASTICITY-WEAK PLIABLE

RATINGS:	CRUMB COLOR (CC):	YELLOW	GREY	DULL	CREAMY	BRIGHT WHITE
	CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK		FINE
	CRUMB TEXTURE (CT):	HARSH		COARSE		SILKY

C= % Semi-Hard
D= % Hard

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 3

LOCATION: Langdon, ND										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT			FLOUR			FLOUR			MIX			BAKE				
					A	B	C	D	INDEX	HARD- NESS	PRO (14% mb)	ASH (14% mb)	EXT	PRO (14% mb)	ASH (14% mb)	ABS	PAT	ABS	TIME (min)	C	C	C		
Marquis	58.7	33.2	82	1	6	25	35	34	54.7	71	14.3	1.84	51.6	13.5	0.46	55.5	2	55.5	3.00	2	4	5	4	185
Chris	56.6	27.3	61	2	3	18	29	50	60.0	68	15.1	1.72	44.6	14.9	0.41	56.9	3	56.9	2.75	2	4	5	4	187
Era	55.9	24.9	41	5	2	3	18	77	71.1	71	13.7	1.85	57.0	12.8	0.46	54.6	2	54.6	3.50	2	4	5	4	191
Stoa	55.8	29.3	56	4	1	6	27	66	67.9	68	15.0	1.80	61.2	14.6	0.43	59.6	3	59.6	3.50	3	4	3	5	198
Butte 86	57.4	33.1	75	3	5	15	38	42	58.8	67	14.8	1.70	52.6	14.7	0.39	59.6	3	59.6	3.00	3	4	5	5	206
SD3249	60.9	31.2	71	1	5	16	34	45	61.2	60	14.7	1.63	60.1	14.3	0.38	60.0	4	57.9	4.50	3	4	5	5	213
SD8108	59.5	31.1	74	4	7	24	33	36	57.1	55	14.2	1.60	43.9	14.0	0.38	58.6	4	56.6	5.00	3	4	4	4	208
SD3219	59.4	29.9	64	3	1	5	20	74	70.6	60	14.0	1.79	41.4	13.4	0.42	58.6	3	56.6	4.00	3	3	4	5	198
SD8119	57.8	31.5	79	1	2	11	37	50	62.0	79	14.6	1.71	49.5	14.5	0.42	59.6	3	57.4	3.50	3	3	4	5	206
SD3310	59.7	31.4	78	1	15	29	25	31	53.4	43	15.3	1.77	58.7	15.0	0.35	59.6	3	57.4	3.00	3	3	5	5	215
MN93413	62.4	34.3	70	1	2	18	42	38	58.2	69	12.9	1.63	59.5	11.6	0.43	56.9	2	54.6	3.00	2	3	3	5	187
SBE0050	58.2	28.9	48	3	3	5	22	70	66.7	58	14.0	1.81	63.4	13.1	0.47	58.6	3	56.8	4.25	3	3	3	4	211
MN94200	56.6	26.5	52	3	1	4	15	80	72.5	67	13.8	1.60	56.7	12.9	0.46	60.3	4	58.3	3.50	3	4	3	5	196
MN94655	58.2	32.2	71	1	5	15	33	47	61.6	54	13.7	1.66	50.9	13.0	0.41	57.6	2	55.4	2.00	2	1	3	3	175
SBF0402	59.0	33.6	67	2	6	23	31	40	58.9	66	15.4	1.56	58.4	15.2	0.36	59.0	4	57.2	4.75	2	3	4	4	194
ND691	55.7	27.7	58	2	1	3	11	85	77.4	65	14.2	1.54	52.5	13.5	0.43	57.9	3	53.9	5.00	3	3	5	4	178
ND694	59.8	30.9	80	1	0	5	18	77	76.2	66	15.4	1.69	57.0	14.9	0.35	57.9	3	56.1	3.50	3	5	3	5	203
ND696	58.2	29.4	68	2	2	12	26	60	69.0	61	15.3	1.71	56.5	14.9	0.37	59.0	3	57.2	3.00	2	1	3	5	180
ND704	59.8	30.9	69	1	2	9	28	61	66.9	67	14.4	1.62	59.4	14.0	0.37	57.3	3	55.3	3.50	2	3	3	4	176
MT9433	55.7	29.1	57	4	4	6	20	70	71.8	65	14.2	1.83	57.9	13.2	0.46	56.9	2	54.6	2.50	2	3	3	4	176

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 3 (cont)

LOCATION: *Langdon, ND*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION A B C D	SKWCS HARDNESS INDEX	NIR HARD- NESS	WHEAT (14% mb)		FLOUR EXT (%)		FLOUR PRO ASH (14 % mb)		MIX ABS		BAKE TIME (min)		MIX TIME (min)		D C C T VOL (cc)				
								PRO	ASH	EXT	PRO	ASH	MIX	BAKE	MIX	BAKE	D	C	C	T	VOL			
MT9608	55.3	28.4	28	6	13	25	27	35	54.5	34	14.1	1.85	47.9	13.9	0.41	59.0	2	57.1	2.00	2	4	3	4	188
B91-0228	59.1	31.7	58	3	2	8	27	63	65.5	63	14.6	1.85	53.0	13.6	0.45	58.6	3	56.7	4.50	3	5	3	5	214
N93-0119	60.7	30.4	73	1	1	3	15	81	78.3	80	14.7	1.79	56.3	13.4	0.44	58.6	2	56.7	3.00	2	1	4	5	190
N93-0136	57.4	29.6	69	1	4	9	26	61	66.1	62	12.8	1.67	60.1	12.0	0.42	54.3	2	52.3	3.00	2	1	3	4	182
N93-0211	56.6	25.4	42	5	1	7	12	80	79.8	54	14.9	1.68	53.3	13.9	0.44	57.6	2	55.3	3.25	3	3	3	5	200
Sharpshoote	60.5	30.9	74	4	5	27	33	35	56.5	61	14.2	1.68	54.2	14.1	0.38	57.9	2	55.8	3.00	2	3	4	5	192
BZ987-331	51.7	29.2	52	4	18	30	30	22	49.0	28	14.6	1.81	43.1	14.1	0.49	59.3	4	57.1	5.50	3	4	4	4	205
T801.93	53.4	31.2	57	2	6	12	22	60	62.4	57	14.5	2.03	50.0	13.2	0.66	59.6	3	57.7	4.00	3	3	3	4	204
T1052	57.2	33.8	68	2	4	20	37	39	59.3	56	15.3	1.82	53.5	15.0	0.41	59.0	3	57.1	4.50	3	3	3	5	203
NX95-5106	53.6	28.0	50	3	4	14	29	53	62.0	39	13.8	1.83	46.7	13.2	0.50	58.2	3	56.2	3.50	2	1	3	5	210
SDM50005	56.4	31.3	60	3	17	23	34	26	49.9	52	14.3	1.86	51.2	13.8	0.43	56.2	2	54.5	3.00	2	4	3	1	183
WA7892	53.0	29.9	52	4	7	21	29	43	56.1	46	13.9	1.83	50.2	12.9	0.43	55.8	3	53.9	4.00	3	4	3	4	190
TX92U2317	54.6	31.6	54	4	5	18	36	41	58.0	56	12.9	1.67	52.6	12.3	0.42	55.5	2	53.5	4.00	2	4	3	2	179
BW693	55.9	32.5	70	1	6	27	32	35	57.3	63	15.2	1.82	59.3	14.9	0.46	59.0	2	57.1	3.00	3	4	3	4	211

DISTRIBUTION: A= % Soft

RATINGS:

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

STICKY-WEAK	DOUGH CHAR (DC):	PLIABLE	ELASTIC	BUCKY
YELLOW	CRUMB COLOR (CC):	GREY	DULL	BRIGHT WHITE
IRREG, THICK	CRUMB GRAIN (CG):	OPEN, THICK	FINE	SILKY
HARSH	CRUMB TEXTURE (CT):	COARSE		

0	3	6
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1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 4

VARIETY	LOCATION: Minot, ND										FARGO, ND												
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO- ASH		FLOUR EXT	FLOUR PRO ASH	MIX ABS	BAKE PAT	MIX TIME	D	C	C	LOAF VOL (cc)				
					A	B	C		(14% mb)	(%)	(14% mb)	(%)	(14% mb)	(%)	(14% mb)	(%)	(min)	C	G	T	Rating		
Marquis	59.5	28.8	69	1	1	7	18	74	78.7	71	15.7	1.56	52.3	14.8	0.37	56.9	2	54.6	3.00	3	3	4	203
Chris	58.9	26.4	54	1	1	8	21	70	74.9	68	15.9	1.49	56.8	15.4	0.37	58.6	3	54.6	4.00	3	4	5	224
Era	59.8	28.0	51	3	1	4	28	67	70.6	66	14.6	1.58	56.9	13.5	0.47	56.9	3	52.9	4.50	3	3	5	203
Stoa	57.6	27.3	54	3	2	3	19	76	71.9	66	15.7	1.70	55.7	14.8	0.46	60.5	4	56.2	4.00	3	3	4	200
Butte 86	59.4	32.6	78	0	3	8	28	61	66.1	73	16.4	1.60	55.1	15.4	0.38	60.8	3	56.8	3.00	3	3	4	208
SD3249	62.6	29.4	55	2	4	7	33	56	66.4	62	16.5	1.78	53.7	16.1	0.35	60.8	4	56.8	4.00	3	3	3	213
SD8108	61.1	29.8	56	2	4	20	31	45	61.5	51	15.2	1.65	48.1	14.3	0.32	58.6	4	54.6	5.50	3	5	3	218
SD3219	61.4	28.5	48	2	1	3	15	81	74.6	63	15.7	1.57	57.4	14.0	0.38	58.6	3	54.6	5.00	3	3	3	214
SD8119	59.8	31.2	71	0	3	7	30	60	66.3	67	16.2	1.59	58.8	15.2	0.41	59.0	2	55.1	4.00	3	3	5	205
SD3310	61.9	31.5	72	0	9	27	37	58.1	52	16.7	1.52	54.0	16.4	0.32	59.3	2	55.1	3.00	3	3	3	222	
MN93413	57.6	29.8	42	5	4	4	26	66	66.0	61	14.4	1.59	52.8	13.0	0.39	57.3	2	53.3	4.50	3	3	4	196
SBE0050	59.9	28.1	34	5	2	4	20	74	68.2	45	15.5	1.56	46.8	14.6	0.36	57.9	3	54.1	5.50	3	5	4	212
MN94200	60.2	27.3	51	2	1	5	19	75	72.4	61	15.1	1.46	52.1	13.7	0.38	58.2	3	54.4	5.00	3	3	4	200
MN94055	60.7	32.0	71	1	8	21	30	41	56.6	44	15.6	1.60	48.6	14.9	0.36	57.6	2	53.6	2.50	3	4	5	213
SBF0402	60.2	30.9	75	1	4	18	29	49	62.9	54	16.3	1.61	58.1	15.8	0.38	60.0	4	56.1	5.50	3	3	4	207
ND691	58.4	28.0	67	2	1	2	15	82	77.3	64	15.5	1.50	55.3	14.4	0.42	59.6	4	55.5	6.00	6	3	3	220
ND694	60.9	27.6	56	1	1	3	21	75	74.1	65	16.7	1.47	55.8	16.1	0.34	59.0	4	55.1	4.00	6	5	3	219
ND695	59.7	29.8	68	1	3	7	35	55	63.2	58	16.1	1.51	53.3	15.1	0.33	59.6	3	55.5	3.50	3	4	5	222
ND704	62.4	30.9	78	1	1	6	28	65	68.8	78	15.9	1.45	58.7	15.3	0.31	59.6	3	55.6	4.00	3	3	3	222
MT9433	60.0	32.6	73	0	1	4	28	67	64.9	82	16.6	1.49	59.4	15.6	0.36	60.8	4	56.6	3.25	3	3	5	210

1997 Spring Uniform Regional Nursery

USDA / ARS WHEAT QUALITY LAB

Table 4 (cont)

LOCATION: Minot, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR NESS	WHEAT PRO (14% mb)	FLOUR EXT (14 % mb)	MIX ABS	BAKE PAT	MIX TIME (min)	D C C T VOL (cc)										
					A	B	C																	
MT9508	59.9	33.3	74	1	17	27	23	33	53.9	47	16.0	1.56	44.7	15.9	0.34	60.8	3	56.6	2.50	3	5	4	5	218
B91-0228	61.2	32.8	67	1	2	8	30	60	69.1	66	16.6	1.66	51.2	15.7	0.39	59.3	4	54.5	6.00	6	5	5	4	208
N93-0119	61.0	31.4	80	1	1	3	17	79	80.2	86	16.3	1.38	54.2	14.9	0.33	59.0	3	54.5	3.50	3	3	5	4	218
N93-0136	60.1	28.4	48	1	3	13	27	57	65.9	56	14.9	1.50	55.7	13.9	0.34	56.2	2	52.4	4.00	3	4	6	4	198
N93-0211	60.9	31.2	74	1	3	10	23	64	73.2	65	16.7	1.49	56.1	15.8	0.35	59.3	2	54.5	3.25	3	3	5	4	202
Sharpshoote	61.3	32.2	72	2	17	31	25	27	50.6	61	16.4	1.57	54.4	16.3	0.33	59.3	2	54.5	2.50	3	5	3	5	218
BZ987-331	58.2	34.8	74	2	14	23	32	31	53.6	40	15.3	1.57	42.7	15.1	0.39	60.3	4	55.6	8.00	3	4	3	4	201
T801.93	60.2	40.6	88	0	1	26	35	38	59.8	75	16.2	1.76	49.5	14.9	0.49	62.7	4	58.7	4.50	3	5	3	6	230
T1052	60.0	35.6	78	0	6	18	27	49	65.4	72	16.5	1.82	55.6	16.2	0.39	59.6	4	55.6	5.50	6	6	3	5	196
NX95-5106	59.0	33.3	74	1	2	9	30	59	68.7	54	15.5	1.58	48.8	14.7	0.39	59.0	4	54.5	6.50	6	3	3	5	207
SDM50005	60.5	32.3	71	1	8	22	35	35	56.6	64	16.5	1.72	51.4	16.1	0.42	61.1	3	56.3	3.00	3	3	4	5	208
WA7802	58.7	34.7	70	1	9	27	35	29	53.7	51	15.3	1.45	58.7	14.1	0.35	59.6	3	54.5	4.00	6	5	3	4	224
TX92U2317	58.4	31.7	67	1	4	15	37	44	60.5	52	15.4	1.56	55.1	14.5	0.42	59.3	3	54.5	4.50	3	5	3	5	207
BW693	59.3	30.8	59	1	5	20	26	49	63.3	67	16.4	1.64	59.7	15.7	0.38	60.5	3	55.2	3.00	3	6	3	5	217

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

3

6

STICKY-WEAK PLIABLE ELASTIC

YELLOW GREY DULL

IRREG, THICK OPEN, THICK

HARSH COARSE

BUCKY

CREAMY

BRIGHT WHITE

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 5

LOCATION: <i>Brookings, SD</i>	TW	KWT	LG	SM	SKWCS HARDNESS			NIR	WHEAT	FLOUR			PRO	ASH	ABS	PAT	TIME	C	C	G	T	VOL	D			C	C	LOAF
VARIETY	(lb/bu)	(gr)	(%)	(%)	A	B	C	D	HARDNESS	PRO	ASH	EXT	PRO	ASH	ABS	PAT	TIME	C	C	G	T	VOL	Rating	(cc)				
Marquis	57.0	27.2	59	7	1	7	21	71	76.4	76	14.4	1.85	52.6	13.5	0.42	52.9	2	50.3	5.00	6	3	3	4	193				
Chris	59.4	29.5	69	4	1	8	33	58	70.8	73	15.2	1.81	54.2	14.7	0.40	57.6	2	55.5	4.00	3	3	5	5	198				
Era	58.1	28.9	55	9	5	18	27	50	59.4	66	13.6	1.81	55.4	12.4	0.41	55.8	2	54.1	5.00	3	3	3	4	184				
Stoa	59.0	30.5	61	5	2	6	29	63	65.9	66	14.1	1.99	50.9	13.5	0.40	57.6	3	54.6	5.25	3	3	3	5	192				
Butte 86	60.3	35.4	84	2	1	9	36	54	65.3	83	14.8	1.76	60.5	13.5	0.40	58.2	2	55.0	3.25	2	3	3	5	185				
SD3249	62.2	31.4	64	4	2	9	33	56	66.6	72	14.8	1.82	56.5	14.4	0.39	59.0	4	56.5	5.00	6	3	3	6	190				
SD8108	61.0	30.8	65	5	5	16	36	43	60.5	54	14.2	1.69	43.7	13.3	0.37	55.5	4	53.6	7.50	6	3	5	4	189				
SD3219	61.4	33.0	73	5	1	15	29	55	62.7	77	13.3	1.70	52.8	11.8	0.38	53.8	2	52.8	6.00	2	4	3	5	174				
SD8119	59.7	33.4	79	3	1	14	39	46	61.2	80	14.1	1.82	63.3	12.8	0.42	57.6	2	56.5	3.50	3	4	3	5	182				
SD3310	62.2	33.9	82	2	8	26	27	39	59.1	54	14.5	1.76	60.6	13.8	0.35	57.6	2	56.5	4.00	3	3	5	5	181				
MN93413	56.8	31.5	59	7	3	22	37	38	58.2	70	13.0	1.75	54.0	11.7	0.46	53.8	2	52.2	5.50	2	3	3	4	170				
SBE0050	58.2	30.4	48	8	4	16	36	44	60.0	54	13.6	1.76	54.4	12.9	0.41	54.6	3	52.8	8.00	6	3	3	4	183				
MN94200	60.6	30.5	65	5	3	4	25	68	69.7	83	13.8	1.66	53.2	12.1	0.42	56.9	3	54.6	5.00	6	5	3	4	182				
MN94055	60.5	37.0	81	3	12	31	30	27	52.7	58	14.0	1.70	52.4	13.6	0.39	56.5	2	54.2	3.50	2	4	5	4	192				
SBF0402	60.9	35.7	82	3	7	28	37	28	55.1	62	15.1	1.80	67.0	14.0	0.40	57.6	3	55.4	6.00	6	5	3	4	179				
ND691	58.7	29.4	61	5	1	2	19	78	70.6	71	13.7	1.70	57.7	12.7	0.41	55.3	3	53.0	7.50	6	4	3	4	182				
ND694	61.8	30.5	63	5	1	5	19	75	71.3	68	14.6	1.78	54.2	13.5	0.38	55.3	3	53.0	5.00	3	3	3	4	185				
ND695	60.5	31.4	67	3	1	9	34	56	66.2	65	14.5	1.73	55.9	14.0	0.37	56.5	3	54.2	4.00	3	4	3	5	200				
ND704	61.1	32.8	74	4	2	17	34	47	63.9	72	14.5	1.74	57.9	13.5	0.37	56.2	3	54.2	5.50	3	3	3	5	201				
MT9433	60.2	32.7	72	4	1	9	34	56	65.6	84	14.0	1.74	58.6	13.1	0.41	55.8	3	53.9	4.00	3	5	5	5	205				

1997 Spring Uniform Regional Nursery

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 5 (cont)

VARIETY (lb/bu)	TW (gr)	KWT (%)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION			NIR NESS	WHEAT HARD- NESS			FLOUR			MIX			BAKE			MIX			D			C			C			LOAF VOL (cc)		
					A	B	C		PRO (14% mb)	ASH (14% mb)	EXT	PRO (14% mb)	ASH (14% mb)	ABS	PAT	ABS	TIME (min)	C	C	G	T	VOL	Rating	Rating	Rating	Rating	Rating	Rating	Rating	Rating	Rating	Rating			
MT9508	58.7	35.6	66	6	12	34	27	27	52.0	55	15.0	1.76	50.0	14.6	0.38	58.2	3	56.2	3.00	3	3	4	5	202											
B91-0228	60.3	32.8	54	7	1	7	32	60	65.7	69	14.6	1.90	51.9	13.9	0.45	55.5	3	53.4	8.00	3	5	3	5	185											
N93-0119	60.3	31.4	77	2	1	6	29	64	68.8	91	14.2	1.75	55.6	12.4	0.39	58.6	2	56.7	4.00	3	3	3	5	188											
N93-0136	60.6	30.9	72	4	6	22	33	39	58.3	65	13.1	1.74	60.5	12.3	0.37	53.8	2	52.4	5.00	6	4	3	4	170											
N93-0211	60.6	30.3	68	4	1	7	25	67	73.0	71	14.3	1.81	54.6	13.1	0.39	57.6	2	55.6	3.50	3	3	3	5	189											
Sharpshoote	62.3	34.2	79	2	11	30	30	29	53.5	63	14.4	1.74	57.5	13.9	0.35	58.6	3	56.6	3.50	3	3	3	5	194											
BZ987-331	57.8	36.7	81	4	18	27	30	25	50.9	42	13.8	1.90	48.4	13.4	0.35	57.6	4	55.6	9.00	6	3	5	4	188											
T801.93	60.2	36.8	77	3	2	13	43	42	59.6	72	14.6	1.89	50.2	13.0	0.53	57.6	4	55.1	8.00	6	3	4	5	204											
T1052	59.9	35.7	77	3	3	20	38	39	57.7	61	14.8	1.89	51.9	13.9	0.43	55.8	3	53.9	9.00	6	5	3	5	171											
NX95-5106	59.4	33.5	75	3	16	31	50	62.7	49	14.2	1.77	45.8	13.6	0.39	56.5	4	54.2	7.00	6	3	5	5	186												
SDM50006	58.4	32.1	67	5	7	26	43	24	52.8	59	14.1	1.87	54.5	13.7	0.40	58.6	3	56.6	3.00	3	5	3	5	203											
WA7802	55.8	31.0	56	8	5	16	35	44	58.5	59	13.9	1.77	47.9	13.0	0.37	57.6	3	55.6	6.25	3	3	3	5	192											
TX92U2317	56.0	31.1	43	6	5	16	30	49	59.5	49	13.4	1.81	45.8	12.3	0.46	53.2	2	51.1	7.00	6	5	4	4	176											
BW693	56.9	28.6	71	6	3	11	27	59	67.3	70	15.0	1.97	56.5	14.5	0.40	58.6	3	56.6	4.00	3	5	4	5	205											
DISTRIBUTION: A= % Soft					RATINGS:					0					3					6															
B= % Semi-Soft					DOUGH CHAR (DC):					STICKY-WEAK					PLIABLE					ELASTIC					BUCKY										
C= % Semi-Hard					CRUMB COLOR (CC):					YELLOW					GREY					DULL					CREAMY										
D= % Hard					CRUMB GRAIN (CG):					IRREG, THICK					OPEN, THICK					FINE					BRIGHT WHITE										
					CRUMB TEXTURE (CT):					HARSH					COARSE					SILKY															

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 6

LOCATION: Groton, SD										FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT			FLOUR			MIX			BAKE							
					HARD- NESS	DISTRIBUTION INDEX	PRO ASH (14% mb)	PRO ASH (14% mb)	EXT (%)	PRO ASH (14% mb)	ABS (%)	PAT (14% mb)	FLOUR	PRO ASH (14% mb)	ABS (%)	TIME (min)	C C Rating	C C T	D C C LOAF (cc)					
Marquis	53.3	20.2	5	17	1	4	13	82	77.3	60	13.9	1.75	56.5	12.7	0.42	52.6	2	50.5	3.75	2	3	4	182	
Chris	57.8	23.5	22	9	2	4	11	83	78.7	73	15.7	1.81	53.3	15.2	0.38	56.9	2	54.7	3.50	3	3	3	5	200
Era	56.9	23.6	19	12	3	6	11	80	72.5	67	13.6	1.69	54.5	12.5	0.45	55.0	2	53.1	4.00	3	3	3	5	190
Stoa	59.0	26.7	30	6	2	2	14	82	74.1	66	14.9	1.71	51.2	13.9	0.35	58.2	3	56.2	4.25	3	3	3	5	202
Butte 86	59.5	30.2	66	2	1	3	14	82	78.5	77	15.3	1.67	53.3	13.8	0.36	58.2	2	56.2	2.75	2	3	3	5	197
SD3249	62.7	28.7	51	3	2	8	22	68	74.6	67	15.2	1.70	54.2	14.3	0.32	57.6	3	55.1	4.50	3	3	3	4	206
SD8108	61.4	30.8	76	1	2	12	29	57	69.0	57	14.8	1.68	50.5	13.7	0.33	57.6	3	55.1	4.75	3	3	3	4	215
SD3219	61.0	29.5	50	3	2	6	25	67	71.9	62	13.6	1.60	53.0	12.0	0.35	52.6	2	50.7	7.50	2	3	5	5	181
SD8119	59.6	28.7	70	1	0	2	17	81	75.2	72	14.9	1.63	57.7	13.6	0.39	57.3	2	55.1	3.00	3	3	3	6	194
SD3310	61.8	32.1	78	0	11	22	27	40	60.0	44	15.4	1.62	51.6	14.5	0.30	57.6	2	55.6	3.00	3	4	3	5	211
MN93413	59.2	26.5	50	8	1	4	18	77	72.5	73	13.7	1.66	57.7	12.2	0.41	55.5	2	53.4	3.25	3	3	3	5	195
SBE0050	57.9	25.8	21	8	0	6	23	71	67.5	55	14.1	1.67	51.4	13.5	0.41	55.3	2	53.1	6.50	2	5	3	4	195
MN94200	59.4	28.8	58	3	1	3	18	78	73.7	74	14.2	1.64	54.0	12.7	0.40	55.5	2	53.4	4.50	2	5	3	5	195
MN94055	59.8	31.4	67	4	1	12	31	56	64.6	57	14.0	1.66	54.0	13.0	0.37	52.2	1	52.2	3.00	1	3	3	4	179
SBF0402	59.7	31.0	64	3	6	18	33	43	59.4	56	15.3	1.65	55.1	14.5	0.37	57.9	3	55.8	4.50	3	3	3	5	195
ND691	58.7	25.5	28	6	1	2	8	89	85.0	71	14.6	1.62	55.8	13.2	0.34	57.6	2	55.6	5.50	3	3	3	5	195
ND694	61.0	27.7	53	2	1	2	16	81	80.0	67	15.4	1.65	52.3	14.7	0.33	58.6	3	56.6	4.50	3	6	3	6	210
ND695	60.1	29.3	76	1	1	5	21	73	72.6	61	15.2	1.63	54.2	14.3	0.33	56.5	2	54.3	4.00	3	5	3	6	193
ND704	61.4	30.1	79	2	0	3	17	80	73.0	68	15.0	1.62	58.6	14.0	0.32	56.5	2	54.4	4.00	3	5	4	6	195
MT9433	57.9	25.7	28	12	0	2	7	91	81.5	80	14.9	1.71	58.1	13.4	0.41	56.5	2	54.4	3.50	3	3	3	5	189

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USDA / ARS WHEAT QUALITY LAB

Table 6 (cont)

LOCATION: Groton, SD

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S DISTRIBUTION	HARDNESS			WHEAT			FLOUR			MIX			BAKE			MIX			D			C			C			
						A	B	C	D	INDEX	PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO ASH	ASH (%)	ABS	PAT	ABS	TIME (min)	C	C	G	T	VOL (cc)	Rating								
MT9508	55.9	26.1	10	15	6	19	31	44	59.0	46	15.0	1.71	53.7	14.6	0.38	56.5	2	54.4	3.00	3	3	3	4	230									
B91-0228	60.6	30.6	45	3	2	4	26	68	68.4	81	15.1	1.85	52.1	14.2	0.39	56.2	2	55.2	5.75	3	6	3	5	203									
N93-0119	60.5	29.8	64	3	1	1	9	89	74.6	84	15.0	1.63	56.7	13.0	0.35	55.5	2	54.1	4.00	2	5	3	5	183									
N93-0136	60.6	26.7	62	2	2	4	24	70	67.6	60	13.5	1.64	57.3	12.2	0.37	51.9	2	50.3	5.00	2	3	3	2	167									
N93-0211	58.6	24.1	58	6	2	3	13	82	78.2	62	14.8	1.66	57.4	13.6	0.38	57.3	2	57.1	3.50	3	4	3	4	191									
Sharpshooter	55.3	29.0	70	2	4	13	33	50	62.1	62	15.0	1.53	55.8	14.3	0.33	58.2	2	57.1	2.50	2	5	3	5	200									
BZ987-331	54.6	29.3	50	2	14	32	33	21	48.2	37	13.6	1.59	45.3	13.0	0.35	56.3	3	54.4	7.00	3	3	3	5	205									
T801.93	58.7	33.3	52	2	1	5	29	65	63.8	71	14.9	1.83	51.2	13.3	0.46	59.0	3	57.1	6.00	3	3	3	6	222									
T1052	57.6	30.5	42	4	4	22	38	36	55.4	55	15.3	1.72	53.5	14.6	0.39	57.6	3	55.2	8.00	6	5	3	4	188									
NX95-5106	57.7	29.3	53	3	2	11	24	63	64.5	54	14.2	1.68	50.2	13.2	0.40	57.3	2	55.2	5.00	2	3	3	5	211									
SDM50005	56.1	25.4	23	10	5	13	29	53	60.4	51	14.5	1.79	49.8	13.8	0.39	57.6	3	55.9	3.50	3	3	3	5	190									
WA7802	53.6	25.8	53	6	7	20	35	38	55.1	58	13.8	1.71	53.3	13.0	0.39	58.2	3	56.3	4.50	3	3	5	5	198									
TX92U2317	55.8	27.1	14	7	4	14	33	49	58.6	50	13.4	1.63	47.4	12.1	0.45	55.5	2	53.6	4.50	2	2	5	5	191									
BW693	49.4	29.9	59	1	4	19	37	40	57.9	62	15.4	1.67	52.1	15.0	0.40	59.3	3	57.1	2.50	3	5	3	6	230									

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
3	YELLOW	GREY	DULL	BRIGHT WHITE
6	IRREG, THICK	OPEN, THICK	FINE	
	HARSH	COARSE	SILKY	

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USDA / ARS
WHEAT QUALITY LAB

Table 7

LOCATION: *Morris, MN*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR NESS	WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		LOAF	
					A	B	C		PRO (14% mb)	ASH (%)	EXT (14 % mb)	PRO (%)	ASH (%)	ABS	PAT	TIME (min)	C ABS	C PAT	G	T	VOL Rating	(cc)				
Marquis	56.5	25.5	48	4	1	4	21	74	80.2	58	14.3	1.87	50.9	12.8	0.42	54.6	2	52.6	4.00	2	3	5	6	185		
Chris	58.6	27.0	54	4	1	3	17	79	86.0	70	16.0	1.75	56.3	14.9	0.39	57.9	3	56.2	3.50	3	3	4	4	210		
Era	58.2	25.3	35	8	0	3	13	84	78.6	71	14.1	1.85	52.8	12.8	0.40	53.8	2	52.1	4.00	2	5	3	5	206		
Stoa	57.1	26.3	40	5	1	3	4	92	88.1	69	15.9	1.92	48.6	14.3	0.42	59.0	3	57.3	3.50	3	3	5	6	213		
Butte 86	59.3	31.2	56	1	1	3	18	78	83.9	73	15.8	1.80	50.5	14.3	0.37	59.0	3	57.3	3.00	3	3	4	6	211		
SD3249	60.8	27.8	54	3	1	3	13	83	86.7	58	15.5	1.83	46.3	14.5	0.36	57.6	3	55.5	4.25	3	3	3	4	210		
SD8108	58.8	29.6	60	2	2	15	25	58	69.6	50	14.8	1.82	47.2	13.5	0.34	55.3	2	53.1	6.00	2	4	3	5	193		
SD3219	59.9	28.4	54	6	1	5	14	80	82.0	61	14.7	1.70	52.3	12.6	0.37	55.0	2	53.1	6.25	6	3	3	4	189		
SD8119	59.1	31.2	80	1	1	8	20	71	75.2	65	14.9	1.83	54.5	13.1	0.41	59.3	3	57.3	3.25	3	3	6	5	197		
SD3310	61.6	31.8	76	1	4	15	24	57	73.6	52	15.3	1.68	54.7	14.2	0.32	58.2	2	56.2	3.00	3	4	5	6	210		
MN93413	55.5	27.3	43	6	0	7	25	68	75.6	73	14.3	1.79	52.8	12.9	0.42	56.2	3	54.4	4.00	3	5	3	6	210		
SBE0050	57.4	28.2	54	4	1	4	16	79	80.4	69	14.9	1.90	50.5	12.9	0.42	56.9	3	54.7	4.00	3	5	3	5	204		
MN94200	56.9	27.0	30	7	2	4	16	78	75.8	61	15.3	1.90	51.6	14.2	0.46	57.6	3	55.5	5.00	3	5	3	6	225		
MN94055	58.4	32.0	78	1	2	12	25	61	70.5	48	15.2	1.77	52.1	14.1	0.42	55.5	1	53.3	2.50	2	4	6	5	208		
SBF0402	58.7	30.5	72	2	1	9	25	65	70.2	59	16.1	1.96	57.9	15.0	0.41	60.0	4	57.9	4.25	3	3	3	6	219		
ND691	56.6	25.4	28	7	0	2	6	92	92.1	67	14.9	1.76	56.6	13.3	0.42	59.0	4	57.3	4.50	3	3	5	5	202		
ND694	60.8	25.8	45	6	0	1	7	92	89.0	71	15.6	1.83	53.3	14.3	0.41	59.3	3	57.3	3.50	3	5	5	6	204		
ND695	60.1	28.7	67	2	1	5	20	74	77.9	55	15.4	1.87	52.8	13.7	0.37	57.6	3	55.5	3.00	3	3	4	5	219		
ND704	61.5	31.1	73	3	1	7	25	67	71.9	63	15.3	1.70	55.3	13.8	0.38	59.3	3	57.2	4.50	3	3	5	6	225		
MT9433	58.7	27.8	52	5	1	4	13	82	76.5	76	15.5	1.78	58.1	13.7	0.43	59.3	3	57.2	3.00	3	3	6	4	214		

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 7 (cont)

LOCATION: Morris, MN

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR NESS	WHEAT HARD- NESS	FLOUR			MIX PRO (14% mb)	BAKE ABS	MIX ASH	TIME (min)	C C G T VOL Rating
					A	B	C			EXT (%)	ABS	MIX PAT					
MT9508	57.8	29.8	31	7	4	16	32	48	64.2	44	14.9	1.79	45.3	14.3	0.38	59.6	3
B91-0228	59.3	31.8	64	4	0	3	22	75	74.8	67	15.7	2.07	51.4	14.1	0.47	57.6	3
N93-0119	59.1	28.9	67	2	1	2	8	89	82.0	79	15.7	1.92	54.2	13.1	0.43	55.8	2
N93-0136	58.4	29.0	66	2	1	8	23	68	70.6	62	14.1	1.78	55.1	12.3	0.38	52.2	2
N93-0211	59.4	26.1	53	2	3	10	17	70	76.9	68	15.1	1.98	55.1	13.3	0.39	57.3	2
Sharphooote	60.6	31.2	75	1	2	21	28	49	64.5	54	14.7	1.66	56.5	13.5	0.36	57.9	3
BZ987-331	56.5	33.1	74	1	8	28	30	34	55.7	40	14.5	1.93	45.1	13.7	0.41	59.3	4
T801.93	57.8	32.9	71	2	1	5	30	64	66.7	68	15.2	2.08	48.8	13.2	0.54	59.3	3
T1052	59.4	31.8	65	2	13	24	27	36	56.3	58	15.4	2.09	49.1	14.5	0.43	56.5	4
NX95-5106	58.4	32.2	70	1	3	10	27	60	65.7	46	15.0	1.67	49.8	13.9	0.39	58.2	4
SDM50006	57.4	28.5	55	1	6	16	30	48	60.8	51	15.3	1.98	51.2	14.1	0.37	57.3	3
WA7802	55.0	28.4	40	5	2	12	32	54	63.4	53	14.5	1.65	47.4	13.1	0.37	56.2	3
TX92U2317	58.2	32.1	57	2	2	14	31	53	65.4	56	14.8	1.77	50.7	13.4	0.41	56.2	2
BW693	58.5	32.4	74	1	4	15	36	45	59.6	60	15.7	1.74	54.5	14.5	0.40	60.0	3

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

PLIABLE

OPEN, THICK

COARSE

YELLOW

GREY

HARSH

ELASTIC

DULL

FINE

BUCKY

CREAMY

SILKY

0

3

6

BUCKY

BRIGHT WHITE

FINE

SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 8

VARIETY	LOCATION: St. Paul, MN						FARGO, ND																	
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT FLOUR			MIX PRO ASH	MIX ABS	BAKE TIME (min)	MIX TIME (min)	D C C C C T VOL Rating								
					A	B	C		EXT (14% mb)	(14% mb)	ASH													
Marquis	57.0	28.6	68	3	1	5	22	72	72.3	69	15.6	2.08	43.7	14.5	0.46	57.3	2	55.1	4.00	3	3	3	4	195
Chris	57.8	29.3	72	2	7	15	24	54	63.0	74	16.5	1.85	44.9	15.5	0.44	59.3	3	59.3	3.00	3	3	3	5	203
Era	58.0	29.2	58	3	1	5	26	68	65.8	74	14.3	1.94	50.0	12.5	0.43	53.2	2	53.2	5.00	6	3	5	4	172
Stoa	58.2	30.4	70	2	0	2	14	84	74.4	72	16.0	2.13	47.2	14.7	0.43	58.2	3	58.2	4.25	3	3	3	5	206
Butte 86	58.3	32.7	85	1	0	6	22	72	72.0	72	15.3	1.87	49.3	13.4	0.39	57.3	2	57.3	3.50	3	3	4	5	187
SD3249	61.0	30.3	66	4	3	8	23	66	69.9	58	15.7	1.84	49.3	14.9	0.37	56.5	3	56.5	4.50	3	3	3	5	196
SD8108	59.9	30.3	74	2	8	17	31	44	57.5	50	15.3	1.80	43.7	13.9	0.34	55.8	3	55.8	5.75	3	5	5	5	196
SD3219	60.1	30.3	70	3	2	3	19	76	71.2	68	14.9	2.05	49.3	13.2	0.39	53.2	2	53.2	6.50	2	4	6	4	172
SD8119	59.4	32.7	85	1	0	4	25	71	67.6	85	15.5	2.02	48.1	14.0	0.41	57.6	3	57.6	3.50	3	3	3	4	183
SD3310	60.1	33.1	84	1	6	26	25	43	58.6	44	15.7	1.89	44.5	15.0	0.30	56.5	2	56.5	4.50	3	3	3	4	192
MN93413	55.5	30.9	62	4	1	11	26	62	66.6	65	14.5	2.09	48.4	12.4	0.44	56.9	3	56.9	3.50	2	3	6	5	181
SBE0050	57.0	30.2	57	4	4	8	33	55	62.8	59	15.0	1.83	44.1	13.8	0.41	57.6	3	57.6	4.50	3	3	3	4	190
MN94200	57.2	29.1	61	5	2	4	10	84	76.4	67	14.5	1.97	45.3	12.7	0.44	57.9	3	57.9	4.25	2	3	3	5	175
MN94055	58.2	34.1	73	2	7	20	37	36	56.0	49	14.5	1.97	45.1	12.9	0.42	54.6	1	54.6	3.00	2	4	4	5	176
SBF0402	58.6	32.9	76	3	6	17	40	37	57.1	61	15.2	1.93	47.2	13.9	0.37	55.0	2	55.0	5.00	3	3	5	5	193
ND691	58.0	28.9	64	3	0	1	10	89	77.9	68	15.3	1.80	47.4	14.2	0.38	57.6	3	57.6	6.50	3	3	5	5	193
ND694	61.5	32.8	83	1	6	20	27	47	60.0	72	16.2	1.81	48.6	14.7	0.38	57.3	2	58.2	3.75	3	5	3	5	198
ND695	59.7	31.4	76	2	2	9	30	59	67.2	73	16.0	1.94	47.7	14.9	0.35	55.3	2	56.5	3.50	3	3	3	5	198
ND704	60.6	32.0	79	2	1	4	25	70	68.3	70	15.4	1.77	44.4	14.0	0.38	55.8	2	57.2	5.00	3	3	4	4	190
MT9433	59.1	31.4	67	4	1	2	13	84	73.8	88	15.9	2.07	50.0	14.2	0.47	57.9	2	60.1	3.00	3	3	3	5	211

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USDA / ARS WHEAT QUALITY LAB

Table 8 (cont)

LOCATION: St. Paul, MN

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			HARD- NESS INDEX	WHEAT			FLOUR			MIX			BAKE			MIX			D			C			LOAF		
					DISTRIBUTION				PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO ASH	ASH (%)	ABS	PAT	TIME (min)	ABS	PAT	TIME (min)	ABS	PAT	TIME (min)	ABS	PAT	TIME (min)	ABS	PAT	TIME (min)	ABS	PAT	TIME (min)	
					A	B	C																									
MT9508	57.1	32.9	45	5	11	27	28	34	57.0	38	14.9	1.98	39.8	14.6	0.40	56.9	2	58.4	3.25	3	3	3	3	5	194							
B91-0228	59.4	32.5	57	4	2	4	19	75	70.6	73	15.0	2.12	44.9	13.5	0.47	56.5	2	57.2	6.50	3	5	3	5	5	186							
N93-0119	58.1	30.2	61	4	0	1	12	87	78.4	83	15.7	1.88	49.1	13.7	0.43	58.2	3	59.3	4.00	3	4	5	5	5	190							
N93-0136	58.8	29.6	66	2	2	5	26	67	64.8	57	13.6	1.86	52.3	12.1	0.39	54.3	2	55.6	4.50	2	4	5	4	4	173							
N93-0211	59.4	29.9	68	2	2	4	20	74	71.1	69	14.8	1.94	50.5	12.7	0.39	57.9	3	60.1	3.25	3	3	3	3	5	198							
Sharpshooter	61.2	33.2	80	1	5	18	38	39	57.0	64	15.2	1.85	52.1	14.2	0.37	57.6	2	59.3	3.50	2	3	4	5	5	181							
BZ987-331	56.3	37.8	88	0	22	39	25	14	44.9	44	14.4	1.98	47.4	12.8	0.36	57.6	3	59.3	7.00	3	4	3	5	5	196							
T801.93	58.2	35.7	72	2	0	10	38	52	62.6	76	15.4	1.88	48.6	13.6	0.60	59.0	3	60.2	6.00	3	3	4	5	5	221							
T1052	57.2	33.8	61	3	4	20	34	42	59.4	60	15.8	2.00	46.5	14.4	0.45	55.8	3	58.4	7.50	3	5	3	4	4	189							
NX95-5106	58.2	32.9	72	2	8	29	61	63.5	54	14.6	2.03	46.6	13.9	0.44	55.5	3	56.6	7.00	3	3	3	5	5	186								
SDM50005	59.5	30.5	70	1	4	12	35	49	60.6	57	15.0	1.95	53.7	13.9	0.44	55.0	2	56.5	4.50	3	3	3	5	5	190							
WA7802	55.4	33.3	64	4	8	22	36	34	54.0	46	14.6	2.01	46.4	13.9	0.38	57.6	4	59.3	5.50	3	3	3	5	5	194							
TX92U2317	54.4	30.1	47	5	4	8	28	60	62.2	53	14.6	1.87	42.9	12.6	0.51	57.3	3	58.8	5.00	3	3	5	5	5	188							
BW693	57.6	35.6	88	1	3	13	35	49	65.2	78	16.4	1.79	52.1	15.3	0.40	60.8	3	62.5	3.00	3	5	4	5	5	213							

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

BUCKY

BRIGHT WHITE

FINE

SILKY

CRUMB COLOR (CC):

STICKY-WEAK

PLIABLE

ELASTIC

IRREG, THICK

YELLOW

GREY

DULL

CRUMB GRAIN (CG):

OPEN, THICK

HARSH

COARSE

0	3	6
DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE
CRUMB COLOR (CC):	YELLOW	ELASTIC
IRREG, THICK	GREY	DULL
CRUMB GRAIN (CG):	OPEN, THICK	BUCKY
CRUMB TEXTURE (CT):	HARSH	BRIGHT WHITE
		FINE
		SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 9

VARIETY	LOCATION: Dickinson, ND				FARGO, ND				WHEAT QUALITY LAB															
	SKWCS HARDNESS DISTRIBUTION				NIR HARD- NESS				FLOUR PRO ASH (14% mb)															
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A	B	C	D	INDEX	EXT (%)	ABS (14 % mb)	MIX PRO ASH (14 % mb)	BAKE PAT	MIX TIME (min)	D C C G T VOL (cc)									
Marquis	57.4	28.3	66	2	1	7	27	65	73.1	65	15.3	1.73	52.1	14.8	0.45	58.2	3	56.5	4.00	3	3	6	6	210
Chris	57.9	27.2	65	3	1	8	25	66	73.8	70	15.8	1.71	56.1	15.6	0.40	58.6	3	56.6	3.50	3	3	3	5	206
Era	56.5	27.1	55	4	2	6	24	68	68.4	69	14.2	1.82	58.7	13.6	0.47	55.8	2	54.1	5.00	3	3	6	4	204
Sloa	56.7	28.1	59	3	1	2	21	76	71.6	68	16.0	1.77	56.7	15.8	0.45	61.1	4	59.1	4.75	3	3	3	6	213
Butte 86	59.0	34.4	83	0	1	12	36	51	63.1	75	16.1	1.94	56.1	15.8	0.44	60.5	3	58.4	2.75	3	5	4	5	212
SD3249	60.6	29.9	70	2	3	14	29	54	65.1	67	16.5	1.76	57.1	16.3	0.41	59.6	3	57.5	4.50	3	4	3	6	210
SD8108	58.8	31.1	73	1	7	19	33	41	60.7	56	15.2	1.75	53.3	14.9	0.39	58.2	4	56.4	5.50	3	3	6	6	214
SD3219	59.2	29.7	66	4	1	2	20	77	74.3	65	15.0	1.84	56.4	14.1	0.45	56.5	3	54.4	6.00	3	3	3	4	193
SD8119	57.4	32.0	81	1	1	5	26	68	69.6	80	15.6	1.90	58.2	15.3	0.46	61.4	3	59.1	3.50	3	4	3	6	210
SD3310	59.3	34.1	85	1	8	26	24	42	60.4	58	17.1	1.87	56.0	16.9	0.39	58.6	3	56.7	3.00	3	3	3	5	208
MN93413	55.0	29.7	52	4	1	7	34	58	67.7	72	14.2	1.78	55.7	13.0	0.48	57.6	2	55.6	3.50	3	3	3	4	193
SBE0050	54.9	28.0	38	4	1	3	27	69	69.0	53	15.4	1.88	49.1	15.3	0.49	60.0	5	57.9	6.00	2	3	6	5	198
MN94200	58.0	30.1	73	2	0	4	14	82	73.7	73	15.5	1.80	55.1	15.1	0.48	60.0	4	57.9	4.50	3	3	4	4	210
MN94055	57.8	34.5	77	2	7	23	29	41	59.1	49	14.6	1.82	52.6	14.3	0.43	56.2	1	54.4	3.00	2	1	6	6	185
SBF0402	57.4	34.0	78	3	4	27	36	33	56.8	64	16.8	1.65	55.2	16.4	0.42	61.1	5	59.1	4.50	3	4	3	6	217
ND691	57.8	28.2	67	2	0	1	14	85	82.1	65	14.6	1.51	57.1	14.2	0.41	58.6	2	56.7	4.50	2	4	3	6	206
ND694	58.8	28.9	61	2	1	2	15	82	75.9	76	16.2	1.70	61.9	15.7	0.47	59.0	3	57.0	4.75	3	5	4	6	211
ND695	58.3	30.0	73	2	1	6	26	67	70.8	67	15.8	1.75	59.7	15.7	0.42	59.3	3	57.0	3.50	3	4	3	6	217
ND704	59.6	33.1	83	1	1	12	36	51	65.2	72	15.8	1.81	62.6	15.7	0.42	61.4	4	59.1	4.25	3	3	3	6	225
MT9433	57.0	32.9	73	1	1	4	24	71	66.8	79	15.9	1.76	62.7	15.2	0.49	60.3	3	58.4	3.25	3	5	4	6	212

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USDA / ARS WHEAT QUALITY LAB

Table 9 (cont)

LOCATION: Dickinson, ND

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS A (%)	HARDNESS B (%)	NIR C (%)	WHEAT		FLOUR		MIX		BAKE		MIX		TIME		C		LOAF			
								HARD- NESS INDEX	PRO (14% mb)	ASH (14% mb)	EXT	PRO ASH		ABS		PAT		ABS		TIME (min)		C G T		Rating	
												A	B	C	D	A	B	C	G	T	cc				
MT9508	57.4	33.0	51	2	5	20	35	40	59.0	45	15.5	1.78	55.7	15.2	0.44	60.3	3	58.4	3.00	3	5	4	6	222	
B91-0228	59.5	36.1	69	1	1	10	39	50	62.8	72	16.2	1.90	57.0	16.2	0.52	59.3	4	57.0	6.50	3	3	3	6	218	
N93-0119	58.0	34.2	84	1	1	5	23	71	71.1	87	16.1	1.75	58.7	14.7	0.45	60.3	3	58.4	3.50	3	3	5	5	209	
N93-0136	57.8	27.7	57	4	2	8	22	68	70.5	63	14.9	1.76	60.0	14.4	0.48	57.6	3	55.6	4.50	3	4	3	5	207	
N93-0211	57.4	28.9	62	2	1	4	19	76	73.0	72	15.5	1.84	60.3	14.6	0.47	59.6	3	57.5	3.50	3	4	3	5	203	
Sharpshoote	54.8	39.5	75	2	0	5	24	71	69.6	99	15.8	2.01	44.9	14.7	0.71										
BZ987-331	55.0	33.7	73	3	17	32	29	22	47.3	38	15.1	1.89	50.5	14.7	0.43	62.5	6	60.4	6.00	3	3	4	5	232	
T801.93	57.0	38.5	86	1	2	16	40	42	59.4	80	15.5	1.84	53.1	14.5	0.58	60.5	4	58.4	6.00	3	3	3	6	212	
T1052	56.3	35.1	76	2	4	16	38	42	57.7	61	16.5	1.96	49.8	16.2	0.47	60.0	5	57.9	7.00	6	5	3	6	211	
NX95-5106	57.0	34.7	82	1	2	6	35	57	62.5	54	14.9	1.80	50.5	14.7	0.46	59.3	3	57.1	5.50	3	3	4	6	219	
SDM60005	57.0	32.0	72	4	7	27	35	31	52.2	49	15.4	2.00	54.3	15.3	0.45	57.9	3	55.9	3.25	3	4	5	5	192	
WA7802	56.3	34.3	73	2	6	22	42	30	53.9	54	14.5	1.81	57.3	13.9	0.42	57.3	3	55.2	4.50	3	3	4	5	212	
TX92U2317	56.2	31.0	53	3	3	11	35	51	61.3	56	14.2	1.79	54.7	13.2	0.45	56.2	2	54.4	4.00	2	3	5	5	200	
BW693	56.2	29.3	68	3	5	20	30	45	60.0	66	16.5	1.89	58.8	16.4	0.48	61.4	4	59.1	3.00	3	5	3	5	238	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0	3	6
STICKY-WEAK	PLIABLE	ELASTIC
YELLOW	GREY	DULL
IRREG, THICK	OPEN, THICK	
HARSH	COARSE	SILKY

BUCKY	BRIGHT WHITE
FINE	

1997 Spring Uniform Regional Nursery

USDA / ARS

WHEAT QUALITY LAB

Table 10

LOCATION: Sidney, MT										FARGO, ND										D			C			C			
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT HARD- NESS	PRO (14% mb)	ASH (14% mb)	FLOUR			PRO (14 % mb)	ASH (14 % mb)	MIX			BAKE TIME (min)	MIX TIME (min)	D			C			C		
					A	B	C				EXT	(%)	ABS	PAT		BAKE	TIME	C			C	G	T	Rating					
Marquis	58.4	29.6	61	3	7	18	26	49	64.9	70	15.6	1.93	52.6	15.0	0.46	57.3	2	55.2	3.50	3	3	3	4	205					
Chris	57.8	25.8	38	9	5	15	20	60	67.0	60	16.1	1.99	54.9	15.9	0.41	56.9	2	54.7	3.50	3	3	5	5	194					
Era	59.1	28.0	49	6	4	9	24	63	66.3	68	15.0	1.89	54.7	14.3	0.46	57.3	3	55.2	5.00	3	3	5	5	204					
Sloa	58.9	27.7	38	5	2	9	21	68	69.6	69	15.3	1.85	56.1	14.8	0.42	60.0	3	57.9	4.00	3	3	5	6	211					
Butte 86	59.7	30.7	64	2	1	11	26	62	67.2	73	16.0	1.96	55.9	15.4	0.46	60.3	2	58.3	2.50	2	3	3	6	207					
SD3249	61.4	28.2	45	4	5	23	67	70.4	75	16.4	1.99	57.8	15.9	0.41	57.9	3	56.0	4.50	3	5	5	6	202						
SD8108	60.4	28.3	39	4	2	15	27	56	65.1	43	15.3	1.78	51.2	14.3	0.37	57.3	3	55.2	5.50	3	3	6	6	201					
SD3249	61.4	31.2	53	3	2	5	23	70	69.5	67	15.5	1.96	56.5	14.3	0.43	58.2	2	56.4	4.00	3	3	4	5	220					
SD8119	59.7	30.4	65	2	2	10	25	63	65.3	71	16.2	1.93	55.9	15.1	0.45	59.3	2	57.3	3.25	3	4	3	6	210					
SD3310	60.7	30.8	67	2	8	27	29	36	56.2	57	17.1	1.88	53.8	16.6	0.38	59.6	2	57.5	2.75	3	4	3	6	221					
MN93413	57.2	28.3	26	11	2	14	24	60	65.1	55	13.7	1.81	56.1	12.5	0.43	57.3	3	55.2	4.00	3	4	5	5	188					
SBE0050	58.4	27.1	28	11	2	11	20	67	68.8	55	15.6	1.89	52.4	15.1	0.46	58.3	3	56.4	5.00	3	5	3	5	214					
MN94200	59.9	29.4	53	3	2	6	24	68	69.3	71	14.7	1.84	54.7	13.5	0.44	58.6	3	56.8	4.00	3	5	4	5	189					
MN94055	58.9	31.8	59	3	8	19	26	47	60.6	52	15.3	1.83	54.0	14.8	0.42	56.5	2	54.5	3.00	2	4	3	5	192					
SBF0402	60.4	32.1	75	2	9	19	29	43	57.0	70	16.3	1.94	54.7	15.7	0.43	59.0	3	57.3	4.25	3	3	5	5	216					
ND691	59.0	25.9	41	6	2	4	18	76	72.3	74	15.1	1.73	56.6	14.5	0.41	57.6	3	55.7	5.25	3	3	3	5	203					
ND694	61.6	26.6	38	4	1	4	16	79	72.3	76	15.8	1.84	56.5	14.8	0.42	60.0	4	57.9	4.00	3	5	3	6	201					
ND695	61.2	29.5	52	3	2	11	28	59	64.3	65	15.6	1.79	52.4	14.7	0.36	58.2	3	56.4	4.00	3	3	3	6	206					
ND704	61.2	32.4	62	2	3	10	32	55	62.5	65	15.4	1.89	58.0	14.5	0.41	59.3	3	55.7	4.25	3	5	3	5	214					
MT9433	61.4	32.1	58	2	2	5	27	66	65.1	88	14.8	1.79	59.1	13.9	0.45	57.9	3	56.0	3.50	3	5	5	5	209					

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Rep 1

Table 10 (cont)

LOCATION: Sidney, MT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT		FLOUR			MIX		BAKE		MIX		TIME		C		LOAF	
					DISTRIBUTION			HARD-	PRO (14% mb)	ASH	EXT	PRO (14% mb)	ASH	ABS	PAT	MIX	TIME (min)	C	G	T	VOL	Rating		
					A	B	C	D	INDEX	NESS														
MT9508	59.1	34.8	50	3	23	28	26	23	46.8	56	17.1	1.94	50.5	16.6	0.41	59.6	2	57.5	2.50	3	3	3	5	229
B91-0228	61.7	34.0	52	2	5	15	31	49	59.2	65	15.9	2.04	52.6	15.0	0.45	57.6	3	55.7	5.50	3	3	5	5	192
N93-0119	60.6	32.3	68	2	1	6	26	67	65.8	91	15.8	1.91	54.9	14.2	0.45	60.5	3	58.3	3.00	3	3	5	5	212
N93-0136	61.0	30.8	63	3	6	21	29	44	57.2	62	14.8	1.83	57.3	13.8	0.40	56.2	2	54.5	3.50	2	3	6	5	196
N93-0211	60.2	29.7	52	4	3	13	25	59	63.3	76	16.1	1.97	58.6	14.6	0.43	59.0	3	57.3	3.50	3	3	3	5	203
Sharpshoote	57.2	36.9	72	2	28	29	27	16	44.3	50	16.3	2.10	45.8	15.9	0.46	62.7	5	60.9	6.00	3	5	3	6	230
BZ987-331	59.8	37.9	69	1	3	23	36	38	55.8	74	15.0	1.93	52.8	13.4	0.50	59.3	3	57.3	6.00	2	5	3	6	201
T801.93	58.4	35.3	68	1	5	24	35	36	55.0	59	17.0	2.15	52.6	16.9	0.48	62.5	4	60.4	5.00	3	6	3	6	193
T1052	59.9	35.1	45	8	6	21	32	41	56.5	53	14.7	1.91	57.8	13.3	0.45	59.3	3	57.3	4.00	3	3	3	6	210
NX95-5106	58.6	35.7	67	3	4	23	36	37	55.6	51	14.5	1.99	48.4	13.7	0.44	59.0	4	57.3	6.50	3	3	3	5	197
SDM50005	58.9	34.6	67	2	1	6	26	67	65.7	70	15.2	1.95	51.9	13.6	0.46	59.6	4	57.5	6.50	3	5	3	5	201
WA7802	59.0	32.2	56	3	9	27	32	32	52.5	60	14.8	1.82	53.5	14.3	0.42	60.0	3	57.9	4.50	3	3	3	5	207
TX92U2317	57.7	30.6	49	7	7	12	30	51	59.9	57	15.4	1.79	56.3	12.9	0.41	59.6	3	57.5	4.00	3	3	3	5	207
BW693	57.4	28.4	45	4	7	10	33	50	60.1	64	16.1	1.99	54.5	15.9	0.43	62.5	3	60.4	2.50	3	5	3	6	244

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG. THICK

HARSH

PLIABLE

GREY

OPEN, THICK

COARSE

ELASTIC

DULL

CREAMY

OPEN, THICK

BUCKY

BRIGHT WHITE

FINE

SILKY

0

3

6

1997 Spring Uniform Regional Nursery

USDA / ARS

WHEAT QUALITY LAB
FARGO, ND

Rep 2

Table 10

LOCATION: Sidney, MT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT HARD- NESS	NIR (14% mb)	PRO ASH (14% mb)	EXT (%)	FLOUR PRO ASH (14% mb)	MIX ABS (%)	BAKE ABS (min)	MIX TIME	D C C C LOAF Rating	
					A	B	C										
Marquis	59.0	28.3	58	4	6	20	28	46	58.2	66	16.1	2.03	51.4	15.0	0.45	59.0	3
Chris	60.1	26.2	36	9	5	14	27	54	61.3	70	16.4	1.91	52.9	15.7	0.41	58.6	3
Era	58.9	28.2	51	5	4	14	26	56	62.3	60	15.4	1.96	53.3	13.6	0.46	55.5	3
Stoa	58.4	27.2	36	5	3	7	23	67	66.5	69	15.6	1.89	54.9	14.4	0.44	60.3	3
Butte 86	58.2	31.5	71	2	2	13	32	53	60.9	81	16.6	1.88	54.0	15.3	0.45	63.1	3
SD3249	61.4	29.9	54	2	8	17	35	40	56.2	74	16.7	1.92	56.6	15.9	0.41	61.4	3
SD8108	60.6	30.5	51	2	6	19	32	43	55.9	52	15.1	1.81	49.3	14.0	0.37	60.0	4
SD3219	61.8	32.6	57	3	4	10	29	57	61.4	74	15.4	1.93	56.1	14.0	0.45	58.6	2
SD8119	59.5	31.9	75	1	3	12	33	52	61.0	76	15.9	1.86	56.3	14.8	0.47	60.3	2
SD3310	61.2	31.4	67	1	15	30	35	20	47.9	60	16.7	1.87	54.1	16.7	0.39	60.8	3
MN93413	57.4	30.0	39	7	6	16	32	46	58.8	65	13.7	1.76	56.3	12.3	0.45	57.6	3
SBE0050	59.2	28.4	31	9	3	14	28	55	62.6	56	14.8	1.84	49.3	14.1	0.46	58.2	3
MN94200	59.7	29.0	49	4	1	6	22	71	69.1	67	15.3	1.84	54.0	13.9	0.43	57.9	3
MN94055	60.2	33.4	73	2	7	22	35	36	54.1	53	15.0	1.80	48.1	14.7	0.41	56.2	1
SBF0402	59.8	33.3	73	1	6	25	33	36	54.1	61	16.5	1.74	52.6	15.7	0.43	60.0	3
ND691	60.6	28.2	43	6	3	9	18	70	67.5	62	14.7	1.77	55.5	14.4	0.44	59.3	3
ND694	61.2	29.7	46	4	2	13	32	53	60.9	64	15.9	1.80	53.8	14.6	0.42	61.1	4
ND695	62.1	31.1	55	3	4	12	32	52	59.9	68	15.1	1.78	51.2	14.3	0.37	57.6	2
ND704	62.2	31.5	69	1	3	7	25	65	64.4	66	15.6	1.78	54.3	14.9	0.39	58.6	4
MT9433	61.3	31.7	62	2	2	7	26	65	64.9	78	14.5	1.87	54.9	13.0	0.43	59.0	2

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Rep 2

Table 10 (cont)

LOCATION: Sidney, MT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A	B	C	D	SKWC'S HARDNESS		WHEAT HARD- NESS	PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO ASH (14% mb)	ASH (%)	FLOUR		PAT (min)	BAKE ABS	TIME (min)	MIX	D	C	C	LOAF VOL (cc)
									DISTRIBUTION							INDEX										
									A	B	C	D				48	17.0	1.94	57.1	16.6	0.43	62.7	3	60.6	2.00	3
MT9508	58.6	34.9	55	3	24	31	26	19	46.6	48	17.0	1.94	57.1	16.6	0.43	62.7	3	60.6	2.00	3	6	3	6	225		
B91-0228	62.0	32.9	58	2	4	15	28	53	59.7	68	16.3	1.92	59.2	15.2	0.46	59.3	3	57.3	5.00	3	5	3	6	200		
N93-0119	60.2	31.6	68	1	1	5	16	78	68.8	86	15.9	1.85	59.3	14.0	0.48	59.6	2	57.4	3.50	3	3	5	6	210		
N93-0136	61.6	28.7	51	5	3	11	23	63	64.0	50	14.2	1.76	59.7	13.0	0.42	54.3	2	52.5	5.00	2	3	3	4	177		
N93-0211	61.3	31.5	59	2	3	14	27	56	61.1	72	15.5	1.87	60.8	13.5	0.45	56.8	2	54.6	4.00	2	5	3	5	198		
Sharpshooter					0	0	0	0	0.0	0.0	0.0	0.0	Num	#Num!	Num	Num	Num	Num	Num	Num	Num	Num	Num	Num		
BZ987-331	57.2	39.0	80	2	32	37	19	12	41.0	44	16.0	1.93	52.1	15.6	0.47	61.8	5	60.0	5.50	3	3	3	3	227		
T801.93	59.9	37.2	76	1	9	24	31	36	53.9	66	15.6	1.90	57.2	14.0	0.53	60.3	4	58.4	5.50	3	5	3	5	218		
T1052	59.0	36.9	75	1	6	23	39	32	53.2	57	17.0	2.08	53.6	16.4	0.48	60.5	4	58.4	5.50	3	6	6	6	212		
NX95-5106	59.7	35.6	71	2	6	16	38	40	55.6	43	15.3	1.89	50.9	13.8	0.44	60.0	4	57.9	5.50	3	3	3	6	207		
SDM60005	60.5	32.5	66	3	9	23	31	37	53.1	52	15.3	1.78	58.6	14.7	0.45	58.6	3	56.7	3.00	3	3	3	5	197		
WA7802	59.1	33.8	62	2	12	29	30	29	50.6	53	15.6	1.73	62.1	14.2	0.39	59.6	3	57.4	4.50	3	3	3	5	214		
TX92U2317	58.1	33.4	55	4	5	23	32	40	55.8	53	14.9	1.84	55.2	13.5	0.44	57.9	2	56.1	4.00	3	3	5	5	210		
BW693	57.4	30.4	47	4	9	18	33	40	56.0	61	16.5	2.01	58.6	15.5	0.45	60.3	3	58.4	3.00	3	3	3	5	220		

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
3	YELLOW	GREY	DULL	BRIGHT WHITE
6	IRREG, THICK	HARSH	OPEN, THICK	FINE
			COARSE	SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 11

LOCATION: Williston, ND											FARGO, ND													
VARIETY	TW (lb/mu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT			FLOUR			MIX			BAKE			MIX				
					A	B	C	D	HARD- NESS	PRO (14% mb)	ASH (14% mb)	EXT	PRO (14 % mb)	ASH	ABS	PAT	TIME (min)	C	C	G	T	VOL (cc)		
Marquis	56.8	28.9	58	4	15	23	33	29	50.3	68	16.4	1.74	54.0	15.8	0.42	58.0	2	56.1	3.00	3	5	3	4	216
Chris	55.4	25.3	45	9	13	26	29	32	50.6	69	16.8	1.70	55.0	16.1	0.38	58.2	3	56.4	4.00	3	3	3	4	208
Era	54.9	26.0	38	11	8	16	28	48	57.1	52	15.0	1.60	54.2	14.0	0.48	55.3	3	53.2	5.50	3	3	3	4	210
Stoa	56.6	26.8	49	5	5	10	30	55	61.6	64	16.8	1.61	53.5	15.8	0.41	60.0	3	57.9	4.50	3	3	3	5	218
Butte 86	57.7	33.6	78	4	7	27	38	28	52.2	71	17.4	1.90	55.9	16.6	0.43	60.8	3	58.6	2.50	3	4	3	5	204
SD3249	59.7	29.4	60	4	13	31	29	27	50.4	66	17.6	1.79	55.7	16.7	0.37	59.6	4	57.4	4.50	3	4	3	5	214
SD8108	57.2	29.9	56	5	27	36	21	16	41.7	55	16.4	1.69	48.3	16.0	0.33	58.2	4	56.4	5.50	3	3	3	4	213
SD3219	59.4	30.6	63	4	5	19	40	36	55.3	68	17.1	2.02	56.5	15.2	0.43	60.8	4	58.6	4.25	3	5	6	5	216
SD8119	56.8	31.3	72	4	11	19	35	35	54.1	69	17.5	1.78	53.8	17.1	0.40	62.5	3	60.2	3.00	3	4	3	5	224
SD3310	60.0	31.0	62	2	24	32	29	15	45.5	49	18.3	1.93	54.8	18.2	0.37	63.1	3	61.0	2.50	3	1	3	5	221
MN93413	54.2	29.8	45	9	8	23	30	39	56.0	66	15.6	1.69	59.2	14.6	0.44	59.6	3	57.4	3.75	3	5	4	4	211
SBE0050	56.1	26.4	49	10	4	14	31	51	61.5	60	17.2	1.76	53.6	16.7	0.44	61.1	4	59.1	4.50	3	3	3	4	240
MN94200	57.9	28.9	59	4	7	16	22	55	63.8	79	16.7	1.79	58.3	16.4	0.41	61.8	3	59.9	3.50	3	3	3	4	217
MN94055	56.5	33.7	69	4	32	26	17	25	45.1	55	16.6	1.86	52.6	16.2	0.41	59.0	2	57.0	2.25	2	3	3	4	215
SBF0402	57.8	34.2	75	3	23	32	20	25	47.1	54	18.1	1.93	58.4	18.0	0.41	63.7	5	61.6	4.00	3	4	3	5	228
ND691	56.1	25.6	37	11	4	14	28	54	62.5	68	16.2	1.57	59.2	15.2	0.44	62.5	4	60.2	4.25	3	1	3	5	210
ND694	59.2	25.4	47	10	5	11	25	59	66.1	67	16.8	1.82	56.7	16.6	0.36	61.4	4	59.1	3.50	3	5	4	5	220
ND695	59.0	29.1	53	6	9	23	31	37	56.2	58	16.7	1.67	54.0	16.0	0.36	59.6	3	57.4	3.25	3	3	5	5	215
ND704	59.5	30.3	70	4	4	21	36	39	57.9	65	17.0	1.72	59.7	16.7	0.35	61.8	4	59.8	3.50	3	3	3	5	216
MN9433	57.8	30.4	58	3	6	16	27	51	58.9	80	17.3	1.79	59.6	16.4	0.40	61.1	3	59.2	3.00	3	3	4	4	205

1997 Spring Uniform Regional Nursery

USDA / ARS WHEAT QUALITY LAB

Table 11 (cont)

LOCATION: Williston, ND

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS			NIR NESS	WHEAT			FLOUR			MIX			BAKE			MIX			TIME			D			C			C		
					A	B	C		PRO (14% mb)	ASH (14% mb)	EXT (%)	PRO (%)	ASH (%)	ABS	PAT	MIX	TIME (min)	C	C	G	T	VOL (cc)	Rating												
MT9508	57.3	34.4	57	2	44	28	15	13	39.4	50	17.6	1.77	50.0	17.5	0.36	62.7	4	60.8	2.25	3	3	4	4	217											
B91-0228	58.2	29.5	49	5	6	16	24	54	62.7	76	17.4	1.92	54.2	16.6	0.46	62.7	4	60.8	5.00	3	5	5	5	216											
N93-0119	58.3	29.3	62	4	5	10	17	68	73.0	79	17.6	1.83	55.2	16.6	0.41	60.8	3	58.7	2.75	3	3	3	5	222											
N93-0136	57.6	27.7	57	3	12	22	31	35	55.3	59	15.8	1.73	59.5	14.9	0.39	56.9	2	58.7	3.50	2	3	3	5	187											
N93-0211	59.0	30.1	68	4	9	16	27	48	59.9	63	17.7	1.86	57.1	16.9	0.40	61.4	3	59.5	3.00	3	5	3	5	215											
Sharpshoote	61.4	32.3	74	4	33	34	20	13	41.6	52	16.7	1.56	59.2	15.9	0.33	61.4	2	59.5	2.00	3	3	3	5	198											
BZ987-331	55.8	37.7	78	2	54	22	10	14	35.9	48	17.3	1.79	51.7	17.1	0.42	66.1	6	64.1	5.50	3	3	3	5	214											
T801.93	56.6	36.7	78	3	12	32	30	26	51.4	73	17.5	2.00	51.4	16.1	0.52	64.7	5	62.9	4.50	3	3	3	6	240											
T1052	57.2	34.8	78	2	28	30	21	21	46.0	57	18.6	1.89	50.7	18.5	0.43	63.4	4	61.6	3.50	3	3	3	5	200											
NX95-5106	57.4	34.8	73	4	15	32	25	28	50.2	48	16.5	2.00	50.7	15.8	0.39	63.1	4	61.0	4.50	3	3	3	5	205											
SDM50005	57.9	32.6	72	4	30	31	23	16	41.8	47	17.0	1.67	55.2	16.9	0.39	60.5	3	58.2	2.75	3	5	3	5	208											
WA7802	55.9	32.1	58	4	26	31	27	16	43.6	55	16.6	1.80	56.8	15.7	0.37	60.3	3	58.2	4.00	3	3	3	5	206											
TX92U2317	56.2	29.7	53	7	9	29	35	27	51.7	50	16.0	1.62	54.2	15.6	0.42	59.6	2	57.5	3.50	3	3	3	5	196											
BW693	55.8	28.3	53	6	13	33	31	23	48.6	58	17.0	1.82	56.1	16.3	0.41	63.1	3	61.0	3.00	3	5	3	5	217											

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK
YELLOW
IRREG, THICK

PLIABLE
GREY
HARSH

ELASTIC
DULL
OPEN, THICK

COARSE

BUCKY
BRIGHT WHITE

FINE

SILKY

0	3	6				
DOUGH CHAR (DC): CRUMB COLOR (CC): CRUMB GRAIN (CG): CRUMB TEXTURE (CT):	STICKY-WEAK YELLOW IRREG, THICK	PLIABLE GREY HARSH	ELASTIC DULL OPEN, THICK	BUCKY BRIGHT WHITE	FINE	SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 12

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT			FLOUR			MIX			BAKE			MIX			D			C			C			LOAF											
					DISTRIBUTION			HARDNESS			PRO ASH (14% mb)			PRO ASH (14% mb)			EXT			ABS			ABS			TIME (min)			C			C			G			T			VOL (cc)		
					A	B	C	D	INDEX	NESS																																	
Marquis	60.5	36.7	77	0	9	26	37	28	51.7	63	14.6	1.67	53.1	14.2	0.38	58.2	2	56.3	3.00	2	3	5	4	188																			
Chris	59.7	34.3	90	0	9	29	38	24	50.3	68	15.6	1.69	55.0	15.2	0.35	59.0	2	57.1	2.50	2	3	5	4	198																			
Era	56.9	34.9	89	0	5	18	32	45	58.3	66	13.5	1.51	55.3	12.4	0.35	57.3	2	55.6	3.00	2	4	3	4	187																			
Stoa	59.9	38.1	94	0	1	11	41	47	59.4	73	14.6	1.56	57.5	13.7	0.33	59.6	2	57.7	3.00	2	4	3	4	203																			
Butte 86	60.3	40.2	96	0	3	20	43	34	54.9	73	14.6	1.47	57.3	13.9	0.34	60.8	3	58.6	2.50	2	4	3	4	185																			
SD3249	61.9	37.0	90	0	15	31	37	17	48.2	69	16.0	1.55	59.5	15.5	0.32	62.7	3	60.8	2.50	3	3	3	4	210																			
SD8108	61.0	41.4	94	0	25	41	25	9	42.0	60	14.0	1.50	52.3	13.4	0.30	59.3	2	57.1	3.00	3	3	3	5	186																			
SD3219	61.6	37.5	91	0	0	13	41	46	59.2	67	14.2	1.47	57.5	12.8	0.36	57.3	2	55.6	2.75	1	1	3	4	177																			
SD8119	58.6	38.9	96	0	3	22	43	32	54.5	70	14.9	1.66	57.9	13.8	0.36	58.6	2	56.7	2.00	2	4	5	4	188																			
SD3310	61.4	40.0	95	0	28	43	20	9	40.3	58	15.5	1.50	58.8	15.3	0.35	59.0	2	57.1	1.75	2	1	6	4	199																			
MN93413	60.2	42.2	97	0	8	35	40	17	48.3	68	12.3	1.29	57.7	10.8	0.35	55.8	2	54.0	2.50	2	4	5	4	170																			
SBE0050	60.4	39.6	96	0	6	22	40	32	53.9	63	13.5	1.39	57.7	12.6	0.37	57.3	2	55.6	2.50	2	3	3	4	186																			
MN94200	61.4	39.6	94	0	1	9	40	50	61.0	82	14.0	1.44	57.1	12.8	0.37	57.9	2	56.1	2.75	2	3	3	4	183																			
MN94055	60.2	41.6	94	0	16	35	34	15	46.4	55	13.3	1.55	53.1	12.4	0.35	55.0	1	53.2	2.00	1	1	3	4	167																			
SBF0402	60.9	42.8	95	0	12	39	34	15	46.5	62	15.1	1.40	57.3	14.3	0.33	59.3	3	57.1	3.50	2	3	3	4	198																			
MN691	59.7	34.6	88	0	2	11	34	53	60.5	70	13.6	1.31	60.7	12.3	0.35	58.6	2	56.7	3.25	1	1	5	4	195																			
ND694	62.5	37.3	94	0	2	18	42	38	56.3	74	15.0	1.49	60.1	14.5	0.34	59.6	2	57.7	2.50	2	5	3	5	186																			
ND695	61.6	38.7	92	0	6	23	37	34	53.8	64	15.1	1.47	55.7	14.1	0.32	59.6	2	57.7	3.00	2	3	3	5	191																			
ND704	61.8	40.6	96	0	4	26	44	26	52.1	71	14.3	1.39	58.7	13.9	0.34	58.6	2	56.6	3.00	2	3	4	4	192																			
MT9433	61.4	38.6	92	0	1	10	28	61	62.3	88	14.9	1.56	57.8	13.9	0.36	60.8	2	58.7	2.25	2	5	3	5	196																			

LOCATION: Bozeman, MT

FARGO, ND

WHEAT QUALITY LAB

1997 Spring Uniform Regional Nursery

USDA / ARS WHEAT QUALITY LAB

Table 12 (cont)

LOCATION: Bozeman, MT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR NESS	WHEAT PRO (14% mb)	FLOUR			MIX PRO (14 % mb)	BAKE ABS	TIME (min)	MIX ASH	D	C	C	LOAF VOL (cc)			
					A	B	C			EXT	(%)	ASH											
MT9508	62.0	44.7	92	0	43	31	19	7	37.2	51	15.2	1.48	52.9	14.8	0.32	60.5	2	58.3	1.75	3	5	195	
B91-0228	62.6	44.8	95	0	2	27	37	34	54.6	75	15.0	1.60	54.4	14.2	0.38	60.0	3	57.9	3.50	3	3	194	
N93-0119	61.0	39.5	96	0	1	14	42	43	58.8	85	14.8	1.45	55.1	13.1	0.39	58.6	2	56.6	2.50	2	3	187	
N93-0136	61.0	35.0	88	0	7	28	41	24	51.0	53	12.6	1.41	55.7	11.3	0.31	54.6	2	52.9	4.00	2	4	168	
N93-0211	61.8	38.3	95	0	3	16	38	43	56.2	64	14.1	1.50	54.5	13.2	0.33	58.2	2	56.4	2.50	2	1	188	
Sharphsoote	62.0	40.7	95	0	18	41	30	11	44.0	60	15.4	1.51	53.3	14.8	0.31	61.4	2	59.7	2.50	3	3	204	
BZ987-331	59.9	49.6	92	0	35	45	14	6	36.8	50	13.7	1.41	48.8	13.4	0.35	64.4	4	62.5	3.50	3	1	5	202
T801.93	62.1	51.8	98	0	10	40	37	13	47.0	74	14.4	1.49	51.4	13.0	0.45	63.4	3	61.6	3.25	3	4	5	213
T1052	61.0	46.0	97	0	14	43	31	12	44.9	67	15.2	1.64	54.0	14.9	0.36	62.5	3	60.4	3.75	3	5	4	200
NX95-5106	61.5	44.4	98	0	5	31	44	20	50.1	59	13.8	1.52	55.2	12.5	0.33	60.5	3	58.3	3.50	3	4	4	185
SDM50005	61.6	43.5	95	0	15	35	34	16	46.4	61	14.6	1.53	55.7	14.2	0.35	58.2	2	56.4	2.25	2	4	3	189
WA7802	61.3	45.9	97	0	17	39	30	14	45.4	56	13.6	1.40	54.5	12.3	0.29	58.6	2	56.6	3.00	2	4	3	185
TX92U2317	58.6	38.3	84	0	3	15	41	41	56.8	60	12.8	1.51	50.7	11.7	0.39	56.5	2	54.3	3.25	2	4	4	177
BW693	59.5	42.1	97	0	25	38	26	11	42.4	71	15.8	1.54	55.5	15.0	0.34	60.3	2	58.3	1.75	2	3	5	206

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
YELLOW	GREY	DULL	BRIGHT WHITE
IRREG, THICK	OPEN, THICK	FINE	SILKY
HARSH	COARSE		

0	3	6
STICKY-WEAK	PLIABLE	ELASTIC
YELLOW	GREY	DULL
IRREG, THICK	OPEN, THICK	FINE
HARSH	COARSE	SILKY

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Rep 1

Table 13

LOCATION: Havre, MT

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		LOAF	
					DISTRIBUTION			HARD-	PRO	ASH	EXT	PRO	ASH	ABS	PAT	ABS	TIME	C	C	G	T	VOL	Rating		
					A	B	C	INDEX	(14% mb)	(%)	(14% mb)	(%)	(14% mb)	(%)	(min)								(cc)		
CI 3661	57.3	27.7	53	5	4	13	38	45	58.5	73	16.2	1.53	55.4	15.4	0.40	58.2	3	56.5	3.50	3	3	3	6	195	
CI 13761	56.8	24.5	33	5	2	12	34	52	59.6	70	16.1	1.54	57.5	15.4	0.35	57.9	3	55.8	4.00	3	4	3	6	188	
CI 13986	56.6	26.5	58	4	2	6	23	69	64.6	63	14.7	1.60	53.3	13.6	0.41	57.3	3	55.0	5.00	3	3	5	5	187	
ND582	56.6	26.7	23	5	3	3	22	72	66.4	55	15.8	1.55	59.9	15.3	0.36	60.0	4	57.9	5.00	3	3	3	5	198	
ND597	58.2	29.8	47	3	2	12	28	58	61.0	65	14.9	1.39	58.2	13.9	0.36	58.6	3	56.8	4.00	3	3	3	5	189	
SD3249	59.8	28.7	39	2	6	22	37	35	54.4	57	15.6	1.50	59.9	15.3	0.38	59.6	4	57.4	4.00	3	3	3	6	203	
SD8108	59.1	30.5	51	2	16	37	27	20	46.3	43	14.1	1.37	50.7	13.8	0.31	55.3	4	53.2	7.25	6	3	6	5	178	
SD3219	59.3	27.6	24	7	2	8	14	76	67.7	60	14.6	1.44	59.2	13.6	0.42	55.5	3	53.6	7.00	3	4	3	5	178	
SD8119	57.3	29.5	51	2	2	12	24	62	63.0	58	14.7	1.38	59.7	14.1	0.41	59.3	3	57.2	4.50	3	4	3	5	181	
SD3310	58.9	30.2	39	4	21	39	30	10	42.8	37	15.2	1.52	52.6	15.0	0.35	59.3	3	57.2	4.00	3	1	4	5	186	
MN93413	55.5	28.1	34	4	1	7	25	67	64.3	59	14.6	1.48	56.8	13.3	0.41	58.6	3	56.8	4.00	3	3	4	6	186	
SBE0050	57.3	28.0	15	4	1	5	26	68	63.8	42	13.9	1.37	45.5	13.0	0.37	55.8	4	54.3	7.00	3	6	6	5	175	
MN94200	56.2	25.2	20	10	1	3	9	87	73.8	75	15.1	1.56	49.1	13.9	0.42	58.6	4	56.8	5.50	3	3	3	6	180	
MN94055	57.3	30.3	45	3	7	23	37	33	52.3	64	15.4	1.54	50.2	15.0	0.29	57.6	3	55.4	3.00	3	4	5	5	185	
SBF0402	56.6	28.5	35	5	3	18	38	41	56.2	52	15.6	1.57	57.7	15.4	0.41	61.1	5	59.2	7.00	3	3	4	5	195	
ND691	55.5	23.5	9	11	4	7	19	70	64.8	61	15.8	1.45	62.4	15.2	0.42	61.8	4	59.8	5.50	3	4	3	6	200	
ND694	59.5	29.4	40	4	5	11	33	51	59.5	68	15.0	1.60	60.6	14.3	0.39	59.6	3	57.5	4.50	3	5	4	6	208	
ND695	59.6	30.2	61	2	5	14	35	46	57.6	58	15.5	1.35	57.7	14.7	0.36	59.6	3	57.5	3.50	3	4	3	6	200	
ND704	58.6	28.3	35	5	3	8	23	66	63.8	59	14.4	1.52	56.6	13.6	0.41	58.2	3	56.2	5.00	3	4	5	5	198	
MT9433	59.5	33.5	72	2	3	18	44	35	55.1	79	16.0	1.48	64.5	15.0	0.39	60.5	3	58.3	3.00	3	3	5	5	191	

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 13 Rep 2

LOCATION: *Haute, MT*

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR (14% mb)	WHEAT			MIX (14 % mb)	BAKE ABS	TIME (min)	D C C C G T VOL Rating										
					DISTRIBUTION				PRO ASH	EXT	PRO ASH														
					A	B	C		(%)	(%)	(%)														
CI 3651	58.6	27.8	60	3	4	17	34	45	58.1	75	15.9	1.55	53.5	14.9	0.39	57.3	2	55.0	4.00	3	3	5	5	187	
CI 13751	57.9	26.1	42	5	7	15	30	48	57.8	71	14.5	1.52	54.3	13.7	0.37	56.2	2	54.4	4.50	2	3	5	5	178	
CI 13986	56.6	26.2	25	8	1	8	19	72	66.8	65	13.8	1.59	50.9	12.5	0.42	54.6	2	52.8	6.50	6	3	3	3	2	165
ND582	58.2	27.9	45	4	3	11	23	63	62.8	61	14.7	1.47	53.3	13.6	0.37	57.9	4	55.9	6.00	6	3	5	5	5	187
ND597	58.4	30.6	55	2	1	12	32	55	60.9	68	14.9	1.40	55.6	13.6	0.36	58.2	3	56.3	5.00	3	3	3	3	3	185
SD3249	61.3	30.2	50	4	12	24	33	31	52.0	66	14.1	1.55	56.2	13.1	0.36	59.3	3	57.0	4.50	3	3	5	6	6	177
SD8108	58.7	29.6	45	2	14	30	39	17	47.9	40	13.8	1.42	47.2	13.4	0.32	56.5	4	54.4	7.50	6	3	5	5	5	172
SD3219	61.3	31.1	45	4	3	9	21	67	64.0	67	14.0	1.43	57.5	12.4	0.38	56.2	3	54.4	6.75	2	3	5	5	5	174
SD8119	57.5	30.1	47	2	5	9	32	54	59.4	59	14.1	1.50	60.7	13.0	0.40	59.3	3	57.0	4.50	3	3	3	5	5	169
SD3310	59.4	28.6	44	3	11	23	38	28	50.7	36	13.5	1.37	53.1	13.3	0.36	58.2	2	56.3	4.50	3	3	3	5	5	182
MN93413	55.2	28.4	31	5	3	7	30	60	62.8	60	14.3	1.40	56.3	13.0	0.42	59.3	3	57.0	4.25	3	3	6	5	5	177
SBE0050	56.2	27.9	15	7	3	7	32	58	61.2	47	14.2	1.45	48.6	13.2	0.37	57.6	4	55.7	7.00	6	3	3	3	5	185
MN94200	57.0	26.6	44	6	1	3	15	81	71.4	67	14.6	1.52	50.7	13.1	0.41	58.2	3	56.3	5.50	3	3	5	6	6	180
MN94055	58.1	31.8	53	2	10	28	31	31	51.6	61	14.4	1.46	54.3	13.8	0.37	57.6	2	55.7	3.00	2	4	3	6	6	186
SBF0402	57.4	29.8	44	3	6	16	32	46	56.7	51	14.8	1.49	53.3	14.6	0.39	59.0	4	57.0	7.00	6	3	5	5	5	184
ND691	56.0	25.6	16	8	5	10	27	58	61.5	65	14.7	1.41	58.8	14.2	0.40	59.3	4	57.0	5.50	6	3	3	6	6	198
ND694	58.2	27.8	40	4	3	7	20	70	64.8	59	15.1	1.32	54.0	14.2	0.38	57.9	3	55.9	4.50	3	3	5	5	5	191
ND695	60.1	33.3	71	2	13	28	37	22	48.9	51	14.5	1.33	51.4	13.3	0.35	60.0	3	57.8	3.00	3	3	4	5	5	196
ND704	58.2	28.4	37	7	2	7	20	71	65.3	53	14.4	1.43	54.0	13.4	0.38	57.6	3	55.6	5.00	3	3	3	5	5	192
MT9433	59.5	33.2	72	2	3	11	42	44	58.1	91	15.9	1.41	60.5	14.7	0.36	59.0	3	57.0	3.00	3	3	4	5	5	191

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USDA / ARS

WHEAT QUALITY LAB

Rep 2

Table 13 (cont)

LOCATION: Havre, MT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS			WHEAT HARD- NESS (14% mb)	NIR			WHEAT PRO ASH (14% mb)	MIX			BAKE ABS (min)	MIX TIME (min)	D C C G T VOL (cc)				
					DISTRIBUTION				FLOUR				FLOUR									
					A	B	C		EXT	PRO	ASH		ABS	PAT	BAKE	MIX						
MT9508	59.5	36.1	48	1	9	28	44	19	48.6	44	14.2	1.42	53.8	13.6	0.35	57.3	2	3.50	2			
B91-0228	61.0	36.9	71	0	2	8	41	49	59.3	68	15.1	1.48	54.7	14.1	0.40	59.0	4	57.0	5.50			
N93-0119	57.7	28.0	37	4	2	3	16	79	68.6	84	14.5	1.61	54.9	12.4	0.42	58.2	3	56.5	5.00			
N93-0136	57.8	29.4	37	5	7	12	25	56	58.4	64	13.8	1.39	56.4	12.8	0.38	55.8	3	53.8	4.00			
N93-0211	58.6	28.4	39	4	3	8	28	61	62.8	63	15.5	1.59	57.7	14.0	0.39	59.6	3	57.6	4.50			
FA994601	61.0	32.5	54	2	9	21	35	35	52.8	56	13.5	1.39	55.9	13.1	0.35	58.2	3	56.5	3.50			
BZ987-31	57.0	35.5	66	2	10	33	38	19	48.2	36	13.8	1.46	51.9	12.9	0.36	57.6	4	55.6	3			
T801.93	59.0	37.3	78	2	1	13	50	36	56.8	70	14.5	1.50	53.7	12.9	0.43	59.3	3	57.0	6.50			
T1052	57.2	32.4	49	3	3	11	34	52	59.5	57	15.6	1.58	53.6	14.9	0.41	58.6	3	56.7	7.00			
NX955106	56.8	30.3	54	2	1	9	28	62	62.0	50	14.6	1.51	49.3	14.0	0.38	59.3	4	57.0	7.50			
SDM50005	57.8	30.7	43	4	5	17	40	38	54.8	45	15.0	1.48	54.8	14.4	0.39	59.3	3	57.0	3.50			
WA7802	56.8	34.7	66	3	7	27	40	26	51.4	53	14.6	1.48	54.8	13.9	0.35	59.0	3	57.0	5.00			
TX922U231	56.5	28.8	15	9	5	10	29	56	60.2	52	14.8	1.54	47.9	13.4	0.41	57.6	2	55.6	4.50			
BW693	57.8	31.2	64	2	6	22	42	30	53.3	68	15.0	1.40	57.8	14.2	0.35	57.9	3	56.0	3.50			

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
	YELLOW	GREY	DULL	BRIGHT WHITE
	IRREG, THICK		OPEN, THICK	FINE
	HARSH		COARSE	SILKY

0

3

6

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY

Table 14

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table 14 (cont)

LOCATION: Pullman, WA

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION			NIR NESS	WHEAT PRO (14% mb)	FLOUR EXT (%)	FLOUR ABS (14% mb)	MIX PAT (%)	BAKE ABS	MIX TIME (min)	D C C C LOAF VOL Rating	
					A	B	C									
MT9508	62.0	32.0	32	5	3	20	44	33	55.2	60	11.8	1.50	54.6	10.9	0.32	54.6 2 2.50 2 4 5 5 175
B91-0228	63.0	32.0	48	5	1	5	21	73	67.4	81	11.5	1.72	50.2	10.3	0.42	55.3 3 5.00 2 3 3 5 152
N93-0119	61.6	29.5	63	2	1	1	11	87	71.4	81	10.3	1.36	50.2	8.1	0.38	51.3 1 55.3 5.00 1 1 6 1 124
N93-0136	62.6	30.8	67	2	3	9	28	60	62.3	65	10.1	1.38	51.7	8.5	0.33	49.6 1 53.4 6.00 1 1 6 1 128
N93-0211	61.0	29.0	57	2	1	1	12	86	72.2	74	11.2	1.45	50.7	9.1	0.39	53.2 2 57.2 3.50 1 4 5 4 142
Sharpshoote	63.9	31.7	66	1	3	9	33	55	61.3	52	11.1	1.33	50.5	9.9	0.31	53.2 2 57.2 4.50 1 3 3 5 146
BZ987-331	60.9	36.6	87	0	2	15	51	32	54.8	48	9.8	1.39	46.7	8.5	0.34	50.3 1 54.3 6.00 1 1 1 3 2 132
T801.93	61.8	36.4	75	0	1	5	29	65	62.3	82	9.7	1.52	48.6	8.1	0.43	51.3 1 55.3 8.00 1 3 5 2 140
T1052	59.5	31.0	44	5	2	9	28	61	63.0	60	11.1	1.49	49.3	9.5	0.39	52.6 2 56.7 6.50 2 3 5 5 166
NX95-5106	61.7	34.2	61	3	1	9	31	59	61.2	60	10.2	1.35	48.6	8.8	0.36	51.6 1 55.5 5.00 1 4 3 4 138
SDM5006	61.0	30.0	64	2	0	4	33	63	64.6	65	10.8	1.50	49.8	9.4	0.36	51.3 1 55.3 4.50 1 3 3 4 155
WA7802	60.2	32.1	70	1	2	9	32	57	61.2	61	10.3	1.38	47.2	8.9	0.34	51.3 1 55.3 5.00 1 4 3 4 152
TX92U2317	58.6	28.6	30	8	0	5	22	73	67.5	54	10.8	1.54	47.1	8.8	0.39	49.9 1 53.9 7.00 1 4 3 4 142
BW693	60.9	32.8	76	1	0	8	32	60	64.6	65	11.3	1.60	48.6	9.8	0.37	52.2 2 56.2 4.50 1 4 6 4 142

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0

PLIABLE

ELASTIC

BUCKY

BRIGHT WHITE

FINE

SILKY

3

STICKY-WEAK

YELLOW

GREY

OPEN, THICK

HARSH

COARSE

6

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table of URN Averages:
Northeast Region

REGION: Northeast		SKWCS		WHEAT		FLOUR		FLOUR		BAKE		MIX		D		C		C		LOAF
VARIETY	TW (lb/bu)	KWT (gr)	HARDNESS INDEX	NIR NESS	PRO (14% mb)	ASH (%)	EXT (14% mb)	PRO (14% mb)	ASH (%)	PAT	ABS	TIME (min)	C	C	G	T	VOL (cc)	Rating-----		
Std. Butte 86	58.5	32.0	61.3	65.8	15.2	1.72	56.3	14.5	0.40	2.8	57.8	3.19	3.0	3.5	3.8	5.0	201.5			
Marquis	<u>58.6</u>	29.3	<u>66.3</u>	<u>66.9</u>	14.7	1.81	51.0	13.8	0.46	2.3	56.0	3.19	2.5	3.3	3.5	4.8	189.5			
Chiss	58.1	26.8	<u>67.8</u>	<u>68.4</u>	<u>15.3</u>	1.73	54.3	<u>14.9</u>	0.42	2.8	56.8	3.25	2.8	3.5	<u>4.0</u>	5.0	198.0			
Era	57.7	26.4	<u>68.3</u>	<u>66.0</u>	13.9	1.75	<u>59.3</u>	12.8	0.46	2.3	53.4	3.75	2.3	<u>3.8</u>	<u>4.5</u>	4.5	190.5			
Stoa	57.0	28.3	<u>69.0</u>	<u>67.2</u>	15.1	1.81	<u>57.7</u>	14.5	0.43	<u>3.5</u>	<u>58.1</u>	3.63	3.0	<u>3.8</u>	3.8	<u>5.3</u>	198.5			
SD3249	<u>61.8</u>	29.7	<u>63.6</u>	61.6	15.2	1.76	<u>58.4</u>	<u>14.5</u>	<u>0.37</u>	<u>3.5</u>	56.7	4.13	2.8	3.5	3.8	<u>5.3</u>	<u>204.8</u>			
SD8108	<u>60.0</u>	29.8	58.8	55.3	14.5	<u>1.71</u>	51.8	13.7	<u>0.36</u>	<u>3.5</u>	55.0	5.00	3.0	<u>4.0</u>	3.5	4.8	200.8			
SD3219	<u>60.6</u>	29.4	<u>70.9</u>	64.1	14.5	<u>1.71</u>	55.6	13.4	0.41	<u>3.0</u>	55.9	4.44	2.8	3.0	3.5	5.0	197.3			
SD8119	<u>58.6</u>	30.9	<u>64.5</u>	<u>74.3</u>	14.9	1.74	<u>57.6</u>	14.1	0.43	2.8	56.9	3.56	3.0	<u>4.3</u>	5.0	200.3				
SD3310	<u>60.3</u>	30.7	56.8	53.7	<u>15.5</u>	<u>1.69</u>	<u>58.1</u>	<u>15.1</u>	<u>0.36</u>	2.5	57.4	3.00	2.8	<u>3.0</u>	<u>4.5</u>	5.0	<u>207.8</u>			
MN93413	<u>59.1</u>	31.0	<u>62.9</u>	<u>66.9</u>	13.6	<u>1.67</u>	55.8	12.4	0.43	2.3	54.5	4.13	2.5	3.0	3.0	4.8	189.5			
SBE0050	<u>59.0</u>	29.3	<u>64.6</u>	58.1	14.4	1.74	<u>56.4</u>	13.5	0.44	2.8	55.1	4.56	3.0	<u>4.3</u>	3.3	4.5	<u>204.3</u>			
MN944200	<u>58.8</u>	28.3	<u>67.7</u>	63.6	14.3	<u>1.67</u>	54.7	13.4	0.41	2.8	55.9	3.94	2.8	<u>3.8</u>	3.0	4.8	194.5			
MN94055	<u>59.5</u>	31.6	60.0	53.7	<u>16.6</u>	1.66	51.2	13.6	<u>0.39</u>	<u>2.0</u>	53.6	2.69	2.5	<u>2.5</u>	<u>4.5</u>	4.3	184.0			
SBF0402	<u>59.2</u>	31.3	60.1	60.6	15.1	<u>1.65</u>	56.2	<u>14.5</u>	<u>0.38</u>	<u>3.3</u>	55.7	4.81	2.5	3.5	3.3	4.8	199.0			
ND691	57.9	27.5	<u>76.3</u>	<u>69.1</u>	14.5	<u>1.61</u>	56.2	13.8	0.42	<u>3.5</u>	55.7	5.00	<u>3.8</u>	3.0	3.5	<u>5.3</u>	199.8			
ND694	<u>60.4</u>	29.6	<u>69.0</u>	64.1	<u>15.5</u>	<u>1.68</u>	<u>57.7</u>	<u>14.8</u>	<u>0.36</u>	<u>3.3</u>	56.0	3.81	<u>3.8</u>	<u>4.5</u>	3.0	5.0	200.3			
ND695	<u>58.9</u>	29.8	<u>65.9</u>	60.8	<u>15.4</u>	<u>1.67</u>	<u>57.1</u>	<u>14.8</u>	<u>0.37</u>	2.8	56.3	3.31	2.8	2.8	3.5	<u>5.5</u>	199.5			
ND704	<u>60.4</u>	29.9	<u>67.9</u>	<u>73.1</u>	14.9	<u>1.63</u>	<u>61.2</u>	14.3	<u>0.36</u>	<u>3.0</u>	55.9	3.94	2.8	2.5	3.0	4.8	195.3			

1997 Spring Uniform Regional Nursery

USDA / ARS WHEAT QUALITY LAB

Table of URN Averages:
Northeast Region

REGION: Northeast	FARGO, ND																
	TW	KWT (lb/bu)	SKWCS	NIR	WHEAT		FLOUR		BAKE		TIME (min)	D C C G T	C C C G T				
					PRO	ASH	EXT	(%)	PRO	ASH							
MT9433	57.8	29.5	<u>70.6</u>	<u>76.0</u>	<u>15.2</u>	1.78	<u>59.4</u>	14.2	0.43	<u>3.0</u>	56.5	3.06	2.8	3.0	<u>4.0</u>	<u>5.3</u>	194.0
MT9508	57.6	30.1	<u>54.1</u>	44.3	14.6	1.75	49.1	<u>14.4</u>	<u>0.38</u>	2.3	56.3	2.56	2.5	<u>4.5</u>	<u>4.3</u>	5.0	<u>202.3</u>
B91-0228	<u>59.8</u>	30.5	<u>68.5</u>	<u>67.3</u>	15.1	1.85	54.8	14.2	0.43	<u>3.3</u>	55.9	5.13	<u>3.5</u>	<u>4.5</u>	3.5	<u>5.3</u>	<u>204.8</u>
N93-0119	<u>59.6</u>	29.9	<u>78.8</u>	<u>82.7</u>	<u>15.2</u>	1.73	54.6	13.9	0.42	2.5	56.2	3.38	2.5	2.8	<u>3.8</u>	<u>5.3</u>	198.8
N93-0136	<u>59.0</u>	29.1	<u>64.0</u>	59.5	13.8	<u>1.70</u>	<u>58.3</u>	12.8	<u>0.39</u>	2.0	52.4	3.75	2.3	2.3	3.8	4.5	184.0
N93-0211	<u>58.6</u>	28.3	<u>71.0</u>	62.0	<u>15.4</u>	1.72	55.2	14.4	0.41	2.5	55.3	3.38	3.0	<u>3.5</u>	<u>4.5</u>	5.0	199.3
Sharpshooter	<u>60.8</u>	30.6	55.5	59.8	14.8	<u>1.65</u>	55.1	<u>14.6</u>	<u>0.36</u>	2.3	55.6	2.75	2.5	3.5	3.8	5.0	196.5
BZ987-331	54.5	30.1	54.3	40.0	14.6	1.83	45.4	14.1	0.46	<u>3.5</u>	56.9	5.50	3.0	3.0	3.3	5.0	<u>205.3</u>
T801.93	<u>56.4</u>	<u>33.9</u>	60.5	63.4	14.8	1.89	50.6	13.6	0.56	<u>3.5</u>	<u>57.8</u>	4.25	3.0	<u>3.8</u>	<u>3.0</u>	<u>5.5</u>	<u>210.0</u>
T1052	<u>58.6</u>	<u>32.2</u>	<u>62.4</u>	65.7	<u>15.3</u>	1.83	52.7	<u>14.7</u>	0.42	<u>3.3</u>	56.3	4.88	<u>3.5</u>	<u>4.3</u>	3.0	<u>5.5</u>	197.0
NX95-5106	56.6	29.9	<u>62.4</u>	50.9	14.7	1.79	48.2	14.2	0.45	<u>3.3</u>	55.9	4.81	<u>3.5</u>	3.3	3.3	<u>5.5</u>	<u>206.5</u>
SDM50005	57.5	29.9	55.0	55.6	14.8	1.83	49.0	14.4	0.42	2.3	55.5	3.19	2.5	3.5	3.3	4.3	189.8
WA7802	55.3	30.5	55.8	51.9	14.4	1.74	52.8	13.6	0.41	<u>3.0</u>	54.8	4.00	<u>3.5</u>	<u>4.3</u>	3.3	5.0	197.5
TX92U2317	56.5	30.5	<u>61.6</u>	58.3	13.8	<u>1.70</u>	50.5	12.9	0.45	2.5	54.4	4.25	2.5	<u>4.0</u>	3.8	4.6	190.3
BW693	57.1	31.3	56.9	64.7	<u>15.3</u>	1.77	54.4	<u>14.9</u>	0.42	<u>3.0</u>	57.2	2.94	3.0	<u>4.3</u>	3.5	<u>5.3</u>	<u>203.8</u>

RATINGS:	DOUGH CHAR (DC):	0	3	6
CRUMB COLOR (CC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
CRUMB GRAIN (CG):	YELLOW	GREY	DULL	BRIGHT WHITE
IRREG. THICK:	IRREG, THICK	OPEN, THICK	FINE	SILKY
CRUMB TEXTURE (CT):	HARSH	COARSE		

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB
FARGO, ND

Table of URN Averages:
Southeast Region

REGION: Southeast	SKWCS		NIR		WHEAT		FLOUR		MIX		BAKE		MIX		D	C	C	C	LOAF VOL (cc)
	TW	KWT	HARDNESS	PRO	ASH	EXT	PRO	ASH	PAT	ABS	TIME	C	C	G	T	Rating-----			
VARIETY	(lb/bu)	(gr)	(14% mb)	(14% mb)	(%)	(14 % mb)	(%)	(14 % mb)	(min)										
Std. Butte 86	59.4	32.4	74.9	76.1	15.3	1.77	53.4	13.7	0.38	2.3	56.5	3.13	2.5	3.0	3.5	5.3	195.0		
Marquis	56.0	25.4	<u>76.5</u>	65.7	14.5	1.89	50.9	13.4	0.43	2.0	52.1	4.19	<u>3.3</u>	3.0	3.5	4.5	188.8		
Chris	58.4	27.3	74.6	72.6	<u>15.8</u>	1.80	52.2	<u>15.1</u>	0.40	<u>2.5</u>	56.4	3.50	<u>3.0</u>	3.0	<u>3.8</u>	4.8	<u>202.8</u>		
Era	57.8	26.8	69.1	69.3	13.9	1.82	53.2	12.6	0.42	2.0	53.1	4.50	<u>3.5</u>	<u>3.5</u>	3.5	4.5	188.0		
Stoa	58.3	28.5	<u>75.6</u>	68.0	15.2	1.94	49.5	<u>14.1</u>	0.40	<u>3.0</u>	<u>56.6</u>	4.31	<u>3.0</u>	3.0	3.5	5.3	<u>203.3</u>		
SD3249	<u>61.7</u>	29.5	74.4	63.8	15.3	1.80	51.6	<u>14.5</u>	<u>0.36</u>	<u>3.3</u>	55.9	4.56	<u>3.8</u>	3.0	3.0	4.8	<u>200.5</u>		
SD8108	<u>60.3</u>	30.4	64.2	52.6	14.7	<u>1.75</u>	46.3	13.6	<u>0.34</u>	<u>3.0</u>	54.4	6.00	<u>3.5</u>	<u>3.8</u>	<u>4.0</u>	4.5	<u>198.3</u>		
SD3219	<u>60.6</u>	30.3	72.0	67.1	14.1	<u>1.76</u>	51.9	12.4	<u>0.37</u>	2.0	52.5	6.56	<u>3.0</u>	<u>3.5</u>	<u>4.3</u>	4.5	179.0		
SD8119	<u>59.5</u>	31.5	69.8	75.5	14.9	1.83	<u>55.9</u>	13.4	0.41	<u>2.5</u>	<u>56.6</u>	3.31	<u>3.0</u>	<u>3.3</u>	<u>3.8</u>	5.0	189.0		
SD3310	<u>61.4</u>	<u>32.7</u>	62.8	48.6	15.2	<u>1.74</u>	52.9	<u>14.4</u>	<u>0.32</u>	2.0	56.2	3.63	<u>3.0</u>	<u>3.5</u>	<u>4.0</u>	5.0	<u>198.5</u>		
MN93413	56.8	29.0	68.2	70.1	13.9	1.83	53.2	12.3	0.43	<u>2.5</u>	54.2	4.06	2.5	<u>3.5</u>	<u>3.8</u>	5.0	189.0		
SBE0050	57.6	28.7	67.7	59.3	14.4	1.79	50.1	13.3	0.41	<u>2.8</u>	54.6	5.75	<u>3.5</u>	<u>4.0</u>	3.0	4.3	193.0		
MN94200	58.5	28.9	73.9	71.0	14.4	1.79	51.0	12.9	0.43	<u>2.8</u>	55.4	4.69	<u>3.3</u>	<u>4.5</u>	3.0	5.0	194.3		
MN94056	59.2	<u>33.6</u>	61.0	52.8	14.4	1.78	50.9	13.4	0.40	1.3	53.6	3.00	1.8	<u>3.8</u>	<u>4.5</u>	4.5	188.8		
SBF0402	<u>59.5</u>	<u>32.5</u>	60.4	59.5	<u>15.4</u>	1.83	<u>56.8</u>	<u>14.3</u>	0.39	<u>3.0</u>	56.0	4.94	<u>3.8</u>	<u>3.5</u>	3.5	5.0	<u>196.5</u>		
ND691	58.0	27.3	<u>81.4</u>	69.3	14.6	<u>1.72</u>	<u>54.4</u>	13.3	0.39	<u>3.0</u>	55.9	6.00	<u>3.8</u>	<u>3.3</u>	<u>4.0</u>	4.8	193.0		
ND694	<u>61.3</u>	29.2	<u>75.1</u>	69.8	<u>15.5</u>	<u>1.77</u>	52.1	<u>14.3</u>	<u>0.38</u>	<u>2.8</u>	56.3	4.19	<u>3.0</u>	<u>4.8</u>	3.5	5.3	<u>199.3</u>		
ND695	<u>60.1</u>	30.2	71.0	63.5	15.3	1.79	52.6	<u>14.2</u>	<u>0.35</u>	<u>2.5</u>	55.1	3.63	<u>3.0</u>	<u>3.8</u>	3.3	5.3	<u>202.5</u>		
ND704	<u>61.2</u>	31.5	69.3	68.0	15.1	<u>1.71</u>	<u>54.1</u>	<u>13.9</u>	<u>0.36</u>	<u>2.5</u>	55.8	4.75	<u>3.0</u>	<u>3.5</u>	<u>4.0</u>	5.3	<u>202.8</u>		

1997 Spring Uniform Regional Nursery

USDA / ARS WHEAT QUALITY LAB

**Table of URN Averages:
Southeast Region**

VARIETY	REGION: Southeast		SKWCS		NIR		WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		LOAF		
	TW (lb/bu)	KWT (gr)	HARDNESS INDEX	PRO (14% mb)	ASH (%)	EXT (%)	ASH (14 % mb)	PRO		ASH		PAT		ABS (min)	TIME (min)	C		C		G		T		VOL (cc)	
								MIX	BAKE	MIX	BAKE	MIX	BAKE			C	G	C	G	C	G	C	G	C	G
MT9433	59.0	29.4	74.3	<u>82.2</u>	15.1	1.83	<u>56.2</u>	13.6	0.43	<u>2.5</u>	56.4	3.38	<u>3.0</u>	<u>3.5</u>	<u>4.3</u>	4.8	<u>204.8</u>								
MT9508	57.4	31.1	58.0	45.8	15.0	1.81	47.2	<u>14.5</u>	0.39	<u>2.5</u>	<u>56.6</u>	2.88	<u>3.0</u>	<u>3.5</u>	3.3	4.8	<u>216.3</u>								
B91-0228	<u>59.9</u>	31.9	69.9	72.6	15.1	1.99	50.0	<u>13.9</u>	0.44	<u>2.5</u>	55.3	6.56	<u>3.0</u>	<u>4.8</u>	3.3	5.0	<u>196.8</u>								
N93-0119	<u>59.5</u>	30.1	<u>75.9</u>	<u>84.2</u>	15.2	1.80	<u>53.9</u>	13.1	0.40	2.3	56.0	4.00	2.5	<u>3.8</u>	3.5	5.0	190.3								
N93-0136	<u>59.6</u>	29.0	65.3	60.8	13.6	<u>1.76</u>	<u>56.3</u>	12.2	<u>0.38</u>	2.0	52.1	4.88	<u>3.0</u>	<u>4.0</u>	<u>4.3</u>	3.4	172.5								
N93-0211	<u>59.5</u>	27.6	74.8	67.3	14.8	1.85	<u>54.4</u>	13.2	0.39	2.3	<u>56.9</u>	3.50	<u>3.0</u>	<u>3.3</u>	3.0	4.8	<u>197.8</u>								
Sharpshooter	<u>59.9</u>	31.9	59.3	60.8	14.8	<u>1.70</u>	<u>55.5</u>	<u>14.0</u>	<u>0.35</u>	<u>2.5</u>	<u>57.3</u>	3.13	2.5	<u>3.5</u>	3.3	5.0	<u>195.8</u>								
BZ987-331	56.3	<u>34.2</u>	49.9	40.7	14.1	1.85	46.6	13.2	<u>0.37</u>	<u>3.5</u>	<u>56.6</u>	7.50	<u>3.8</u>	<u>3.3</u>	3.5	4.8	<u>197.3</u>								
T801.93	58.7	<u>34.7</u>	63.2	71.7	15.0	1.92	49.7	13.3	0.53	<u>3.3</u>	<u>57.4</u>	6.13	<u>3.8</u>	<u>3.5</u>	3.5	<u>5.5</u>	<u>218.0</u>								
T1052	58.5	<u>33.0</u>	57.2	58.5	<u>15.3</u>	1.93	50.2	<u>14.3</u>	0.42	<u>3.3</u>	<u>55.4</u>	8.00	<u>5.3</u>	<u>4.5</u>	3.0	4.8	183.8								
NX95-5106	58.4	32.0	64.1	50.9	14.5	1.79	48.1	13.7	0.41	<u>3.3</u>	55.6	6.06	<u>3.5</u>	3.0	3.5	5.3	<u>199.8</u>								
SDM50005	57.9	29.1	58.6	54.6	14.7	1.90	52.3	<u>13.9</u>	0.40	<u>2.8</u>	56.0	3.63	<u>3.0</u>	<u>3.5</u>	3.3	4.8	<u>202.5</u>								
WA7802	54.9	29.6	57.8	53.8	14.2	1.78	48.8	13.2	<u>0.38</u>	<u>3.3</u>	56.3	5.19	<u>3.0</u>	<u>3.5</u>	3.5	5.3	<u>198.5</u>								
TX92U2317	56.1	30.1	61.4	52.1	14.0	<u>1.77</u>	46.7	12.6	0.46	2.3	54.4	5.13	<u>3.5</u>	<u>3.8</u>	<u>4.3</u>	5.0	191.3								
BW693	55.6	31.6	62.5	67.7	<u>15.6</u>	1.79	<u>53.8</u>	<u>14.8</u>	0.40	<u>3.0</u>	<u>58.5</u>	3.00	<u>3.0</u>	<u>5.0</u>	3.5	<u>5.5</u>	<u>218.8</u>								

RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	3	6
	CRUMB COLOR (CC):	YELLOW	GREY	DULL		
	CRUMB GRAIN (CG):	IRREG, THICK	OPEN, THICK	CREAMY		
	CRUMB TEXTURE (CT):	HARSH	COARSE	FINE		
				SILKY		

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB
FARGO, ND

Table of URN Averages:
Midwest Region

REGION: Midwest	WHEAT QUALITY LAB										LOAF VOL (cc)						
	TW (lb/bu)	KWT (gr)	VARIETY	SKWCS		NIR		WHEAT		FLOUR		MIX	BAKE	MIX	D	C	C
				HARDNESS	HARDNESS INDEX	PRO	ASH	EXT (%)	(14% mb)	PRO	ASH	PAT	ABS	TIME (min)	C	C	G
Std. Butte 86	58.6	32.5	60.9	75.2	16.5	1.92	55.5	15.8	0.44	2.8	59.1	2.56	2.8	3.8	3.3	5.5	212.0
Marquis	57.9	28.8	<u>61.6</u>	67.3	15.8	<u>1.86</u>	52.5	15.2	<u>0.44</u>	2.5	56.2	3.50	<u>3.0</u>	3.5	<u>4.3</u>	4.8	209.5
Chris	57.8	26.1	<u>63.2</u>	67.2	16.3	<u>1.82</u>	54.7	<u>15.8</u>	<u>0.40</u>	2.8	56.1	3.63	<u>3.0</u>	3.0	<u>3.8</u>	4.8	203.0
Eta	57.3	27.3	<u>63.5</u>	62.5	14.9	<u>1.82</u>	55.2	13.9	0.47	2.8	54.0	5.13	2.8	3.0	<u>4.3</u>	4.5	200.8
Stoa	57.7	27.4	<u>67.3</u>	67.5	15.9	<u>1.78</u>	55.3	15.2	<u>0.43</u>	<u>3.3</u>	58.3	4.44	<u>3.0</u>	3.0	<u>3.5</u>	5.5	<u>214.5</u>
SD3249	<u>60.8</u>	29.4	60.5	70.4	<u>16.8</u>	<u>1.86</u>	<u>56.8</u>	<u>16.2</u>	<u>0.40</u>	<u>3.3</u>	57.6	4.19	<u>3.0</u>	<u>4.0</u>	<u>3.5</u>	5.5	209.8
SD8108	<u>59.3</u>	30.0	55.8	51.5	15.5	<u>1.76</u>	50.5	14.8	<u>0.36</u>	<u>3.8</u>	56.5	5.25	<u>3.0</u>	3.0	<u>4.5</u>	5.3	209.5
SD3219	<u>60.4</u>	31.0	<u>65.1</u>	68.3	15.8	1.94	<u>56.4</u>	14.4	<u>0.44</u>	2.8	56.5	4.63	2.8	3.8	<u>4.0</u>	5.0	210.3
SD8119	58.4	31.4	<u>62.5</u>	74.0	16.3	<u>1.87</u>	<u>56.1</u>	15.6	0.45	2.5	58.7	3.13	<u>3.0</u>	3.8	<u>3.0</u>	<u>5.8</u>	<u>216.8</u>
SD3310	<u>60.3</u>	31.8	52.5	55.7	<u>17.3</u>	<u>1.89</u>	54.7	<u>17.1</u>	<u>0.38</u>	2.8	58.5	2.69	<u>3.0</u>	2.8	3.0	5.3	<u>214.8</u>
MN93413	55.9	29.4	<u>61.9</u>	64.3	14.3	<u>1.76</u>	<u>56.8</u>	13.1	0.45	2.8	55.9	3.88	2.8	3.8	<u>4.5</u>	4.5	197.0
SBE0050	57.1	27.5	<u>65.5</u>	56.0	15.7	<u>1.84</u>	51.1	15.3	0.46	<u>3.8</u>	57.4	5.25	2.8	<u>4.0</u>	<u>3.8</u>	4.8	<u>215.5</u>
MN94200	<u>58.9</u>	29.4	<u>69.0</u>	72.6	15.6	<u>1.82</u>	<u>55.5</u>	14.7	<u>0.44</u>	<u>3.3</u>	57.6	4.19	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>	4.5	203.5
MN94055	58.3	<u>33.3</u>	54.7	52.1	15.4	<u>1.83</u>	51.8	15.0	<u>0.42</u>	1.5	55.1	2.81	2.0	2.8	<u>4.3</u>	5.0	195.0
SBF0402	<u>58.9</u>	<u>33.4</u>	53.8	62.3	<u>16.9</u>	<u>1.82</u>	55.2	<u>16.4</u>	<u>0.42</u>	<u>4.0</u>	59.0	4.31	<u>3.0</u>	3.5	<u>4.0</u>	5.5	<u>218.0</u>
ND691	58.4	27.0	<u>71.1</u>	67.1	15.1	<u>1.64</u>	<u>57.1</u>	14.6	<u>0.43</u>	<u>3.0</u>	57.4	4.88	2.8	2.8	3.0	5.5	206.8
ND694	<u>60.2</u>	27.6	<u>68.8</u>	70.9	16.2	<u>1.79</u>	<u>57.2</u>	15.4	<u>0.41</u>	<u>3.8</u>	58.3	4.06	<u>3.0</u>	<u>4.5</u>	<u>4.0</u>	<u>5.8</u>	207.5
ND695	<u>60.2</u>	29.9	<u>62.8</u>	64.4	15.8	<u>1.75</u>	54.3	15.2	<u>0.38</u>	2.8	56.5	3.69	<u>3.0</u>	<u>3.5</u>	<u>3.5</u>	<u>5.8</u>	209.8
ND704	<u>60.6</u>	31.8	<u>62.5</u>	66.8	16.0	<u>1.80</u>	<u>58.7</u>	15.5	<u>0.39</u>	<u>3.8</u>	57.8	4.13	<u>3.0</u>	3.5	3.0	5.0	<u>217.8</u>

1997 Spring Uniform Regional Nursery

USDA / ARS

WHEAT QUALITY LAB

Table of URN Averages:
Midwest Region

REGION: Midwest

VARIETY	TW (lb/bu)		SKWCS		NIR		WHEAT (14% mb)		FLOUR		MIX (14 % mb)		BAKE		MIX (min)		D C C C C G T VOL (cc)	
	KWT (gr)	HARDNESS INDEX	HARD- NESS	PRO ASH	EXT	ASH	PRO ASH	(14 % mb)	PAT	ABS	TIME (min)	C C C C G T	Rating-----	Rating-----	Rating-----	Rating-----	Rating-----	Rating-----
MT9433	<u>59.4</u>	31.8	<u>63.9</u>	<u>81.2</u>	15.6	<u>1.80</u>	<u>59.1</u>	14.6	<u>0.44</u>	2.8	57.7	3.31	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>	5.3	206.5	
MT9508	58.1	<u>34.3</u>	48.0	49.4	<u>16.8</u>	<u>1.86</u>	53.3	<u>16.5</u>	<u>0.41</u>	<u>3.0</u>	<u>59.3</u>	2.44	<u>3.0</u>	<u>4.3</u>	<u>3.5</u>	5.3	<u>223.3</u>	
B91-0228	<u>60.3</u>	<u>33.1</u>	<u>61.1</u>	70.3	16.5	1.94	<u>55.7</u>	15.8	0.47	<u>3.5</u>	57.7	5.50	<u>3.0</u>	<u>4.0</u>	<u>4.0</u>	5.5	206.5	
N93-0119	<u>59.3</u>	31.8	<u>69.7</u>	<u>85.9</u>	16.4	<u>1.83</u>	<u>57.0</u>	14.9	0.45	2.8	58.2	3.19	<u>3.0</u>	<u>4.0</u>	<u>4.5</u>	5.3	<u>213.3</u>	
N93-0136	<u>59.5</u>	28.7	<u>61.8</u>	58.5	14.9	<u>1.77</u>	<u>59.1</u>	14.0	<u>0.42</u>	2.3	55.3	4.13	2.3	<u>3.3</u>	<u>3.8</u>	4.8	191.8	
N93-0211	<u>59.5</u>	30.0	<u>64.3</u>	70.6	16.2	<u>1.89</u>	<u>59.2</u>	14.9	<u>0.44</u>	2.8	57.2	3.50	2.8	<u>4.3</u>	3.0	5.0	204.8	
Sharpshooter	<u>59.3</u>	<u>34.6</u>	43.0	50.5	16.5	<u>1.83</u>	52.5	<u>15.9</u>	<u>0.39</u>	<u>3.5</u>	<u>60.2</u>	4.00	<u>3.0</u>	<u>4.0</u>	3.0	5.5	<u>214.0</u>	
BZ987-331	56.9	<u>37.1</u>	45.0	51.0	15.9	<u>1.88</u>	51.8	15.2	0.45	<u>5.0</u>	<u>60.4</u>	5.75	2.8	3.5	3.3	5.3	<u>218.5</u>	
T801.93	58.0	<u>36.9</u>	54.9	69.5	16.4	1.97	53.6	15.4	0.52	<u>4.3</u>	<u>60.0</u>	5.25	<u>3.0</u>	<u>4.3</u>	3.0	<u>5.8</u>	<u>215.8</u>	
T1052	58.1	<u>35.5</u>	53.4	56.9	<u>16.7</u>	1.96	53.0	<u>16.1</u>	0.46	<u>4.0</u>	58.8	5.00	<u>3.8</u>	<u>4.3</u>	<u>3.8</u>	<u>5.8</u>	208.3	
NX95-5106	58.2	<u>35.2</u>	56.0	49.1	15.3	<u>1.92</u>	50.1	14.5	<u>0.43</u>	<u>3.8</u>	58.3	5.50	<u>3.0</u>	<u>3.5</u>	3.3	5.5	207.0	
SDM60006	58.6	<u>32.9</u>	53.2	54.4	15.7	<u>1.85</u>	55.0	15.1	<u>0.44</u>	<u>3.3</u>	57.1	3.88	<u>3.0</u>	<u>4.3</u>	<u>3.5</u>	5.0	199.5	
WA7802	57.6	<u>33.1</u>	50.1	55.5	15.4	<u>1.79</u>	<u>57.4</u>	14.5	<u>0.40</u>	<u>3.0</u>	57.2	4.38	<u>3.0</u>	3.0	3.3	5.0	209.8	
TX92U2317	57.1	31.2	57.2	54.1	15.1	<u>1.76</u>	55.1	13.8	<u>0.43</u>	2.3	56.4	3.88	2.8	3.0	<u>4.0</u>	5.0	203.3	
BW693	56.7	29.1	56.2	62.3	<u>16.5</u>	1.93	<u>57.0</u>	<u>16.0</u>	<u>0.44</u>	<u>3.3</u>	<u>59.7</u>	2.88	<u>3.0</u>	<u>4.5</u>	3.0	5.3	<u>229.8</u>	

RATINGS:

- DOUGH CHAR (DC):
- CRUMB COLOR (CC):
- CRUMB GRAIN (CG):
- CRUMB TEXTURE (CT):

STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
YELLOW	GREY	DULL	BRIGHT WHITE
IRREG, THICK	OPEN, THICK	COARSE	FINE
HARSH		SILKY	

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1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB

Table of URN Averages:
West Region

REGION: <i>West</i>	TW (lb/bu)	KWT (gr)	SKWCS	NIR	WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		LOAF	
					HARDNESS INDEX	HARD- NESS	PRO (14% mb)	ASH (%)	EXT (14% mb)	PRO (14% mb)	ASH (%)	PAT	ABS	TIME (min)	C	C	G	T	VOL (cc)	Rating-----		
Std. Butte 86	61.2	36.5	63.1	70.2	12.9	1.48	53.5	11.5	0.35	2.5	56.4	3.38	1.5	2.5	3.0	2.5	159.0					
Marquis	60.6	33.1	59.8	65.9	<u>13.4</u>	1.58	52.1	<u>12.6</u>	0.38	2.0	55.6	3.25	1.5	<u>3.0</u>	<u>5.5</u>	<u>2.8</u>		<u>166.5</u>				
CI 3651	58.0	27.8	58.3	<u>73.9</u>	<u>16.0</u>	1.54	<u>54.5</u>	<u>15.1</u>	0.40	2.5	55.8	3.75	<u>3.0</u>	<u>3.0</u>	<u>4.0</u>	<u>5.5</u>		<u>191.0</u>				
Chris	60.6	30.8	60.2	68.7	<u>13.5</u>	1.60	51.8	<u>12.8</u>	0.36	2.0	54.4	3.50	1.5	<u>3.5</u>	<u>5.5</u>	<u>2.8</u>		<u>167.0</u>				
CI 13751	57.4	25.3	58.7	<u>70.3</u>	<u>15.3</u>	1.53	<u>55.9</u>	<u>14.6</u>	0.36	2.5	55.1	4.25	<u>2.5</u>	<u>3.5</u>	<u>4.0</u>	<u>5.5</u>		<u>183.0</u>				
CI 13986	56.6	26.4	<u>65.7</u>	63.9	<u>14.2</u>	1.59	52.1	<u>13.0</u>	0.41	2.5	53.9	5.75	<u>4.5</u>	<u>3.0</u>	<u>4.0</u>	<u>3.3</u>		<u>176.0</u>				
Era	58.9	30.9	<u>63.5</u>	65.1	12.0	1.49	52.0	10.3	0.38	1.5	53.0	4.75	1.5	<u>2.5</u>	<u>4.5</u>	<u>2.5</u>		<u>153.5</u>				
ND582	57.4	27.3	<u>64.6</u>	58.0	<u>15.2</u>	1.51	<u>56.6</u>	<u>14.5</u>	0.36	<u>4.0</u>	<u>56.9</u>	5.50	<u>4.5</u>	<u>3.0</u>	<u>4.0</u>	<u>5.0</u>		<u>192.5</u>				
Stoa	61.1	34.1	<u>65.4</u>	69.7	12.9	1.48	<u>53.6</u>	<u>11.6</u>	<u>0.33</u>	2.0	56.0	3.75	1.5	<u>3.5</u>	<u>4.5</u>	<u>4.0</u>		<u>172.0</u>				
ND597	58.3	30.2	61.0	66.5	<u>14.9</u>	<u>1.40</u>	<u>56.9</u>	<u>13.7</u>	0.36	<u>3.0</u>	<u>56.5</u>	4.50	<u>3.0</u>	<u>3.0</u>	<u>5.5</u>		<u>187.0</u>					
SD3249	60.1	31.1	56.5	64.0	<u>14.2</u>	1.51	<u>56.2</u>	<u>13.6</u>	0.35	<u>3.0</u>	<u>57.3</u>	3.94	<u>2.5</u>	<u>3.5</u>	<u>4.3</u>		<u>180.0</u>					
SD8108	60.3	33.5	48.5	47.0	<u>13.2</u>	<u>1.40</u>	49.0	<u>12.5</u>	<u>0.32</u>	<u>2.8</u>	54.3	6.19	<u>4.0</u>	<u>3.0</u>	<u>4.3</u>	<u>4.8</u>		<u>169.3</u>				
SD3219	<u>61.5</u>	31.9	63.0	66.2	<u>13.1</u>	<u>1.44</u>	<u>55.4</u>	<u>11.6</u>	0.38	2.3	54.1	5.75	<u>1.8</u>	<u>2.3</u>	<u>4.3</u>	<u>3.8</u>		<u>162.8</u>				
SD8119	58.7	32.2	60.5	63.9	<u>13.7</u>	1.50	<u>57.3</u>	<u>12.5</u>	0.39	2.3	<u>56.8</u>	3.75	<u>2.3</u>	<u>3.0</u>	<u>4.3</u>	<u>4.5</u>		<u>169.0</u>				
SD3310	60.8	32.4	49.3	47.0	<u>13.7</u>	<u>1.47</u>	52.8	<u>13.4</u>	0.35	2.3	<u>56.8</u>	3.56	<u>2.3</u>	<u>2.3</u>	<u>4.0</u>	<u>4.8</u>		<u>178.8</u>				
MN93413	57.7	32.1	58.0	62.5	12.7	<u>1.37</u>	<u>55.6</u>	11.2	0.39	2.3	55.2	3.94	<u>2.3</u>	<u>3.5</u>	<u>4.5</u>	<u>4.0</u>		<u>166.8</u>				
SBE0050	58.8	30.9	61.2	52.9	12.8	<u>1.40</u>	50.5	<u>11.8</u>	0.37	<u>2.8</u>	54.8	6.25	<u>3.0</u>	<u>3.3</u>	<u>4.5</u>	<u>3.8</u>		<u>166.3</u>				
MN94200	58.9	29.8	<u>68.9</u>	<u>74.8</u>	<u>13.5</u>	1.49	51.0	<u>12.1</u>	0.39	2.5	56.0	4.69	<u>2.3</u>	<u>3.8</u>	<u>4.5</u>	<u>4.3</u>		<u>170.0</u>				
MN94055	59.3	33.9	53.0	62.7	<u>13.4</u>	1.49	52.3	<u>12.6</u>	<u>0.34</u>	1.8	55.0	2.81	<u>1.8</u>	<u>2.5</u>	<u>3.5</u>	<u>4.8</u>		<u>168.0</u>				

1997 Spring Uniform Regional Nursery

USDA / ARS
WHEAT QUALITY LAB
FARGO, ND

Table of URN Averages:
West Region

REGION: West	SKWCS										WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		LOAF	
	TW	KWT	HARDNESS	HARDNESS	PRO	ASH	EXT	PRO	ASH	PAT	ABS	TIME	C	C	G	T	VOL	(cc)										
VARIETY	(lb/bu)	(gr)		(14% mb)	(%)	(14 % mb)		(14 % mb)		(min)																		
SBF0402	59.3	33.6	53.5	55.1	<u>14.1</u>	<u>1.47</u>	<u>55.5</u>	<u>13.4</u>	0.36	<u>3.5</u>	<u>57.0</u>	6.00	<u>3.0</u>	<u>3.3</u>	<u>4.5</u>	<u>3.9</u>	<u>179.0</u>											
ND691	58.3	28.0	<u>63.7</u>	68.0	<u>13.6</u>	<u>1.37</u>	<u>58.9</u>	<u>12.7</u>	0.38	<u>3.0</u>	<u>57.5</u>	4.94	<u>2.8</u>	<u>3.0</u>	<u>3.5</u>	<u>4.3</u>	<u>182.8</u>											
ND694	60.7	30.7	62.5	67.5	<u>14.1</u>	<u>1.46</u>	<u>56.7</u>	<u>13.1</u>	0.37	2.5	<u>56.7</u>	4.06	<u>2.3</u>	<u>4.3</u>	<u>4.3</u>	<u>4.4</u>	<u>182.3</u>											
ND695	60.7	33.3	55.8	58.6	<u>13.9</u>	<u>1.38</u>	<u>53.7</u>	<u>12.9</u>	<u>0.34</u>	2.3	<u>56.8</u>	3.38	<u>2.3</u>	<u>3.5</u>	<u>3.8</u>	<u>4.4</u>	<u>181.3</u>											
ND704	60.0	31.1	61.7	60.1	<u>13.6</u>	<u>1.45</u>	<u>55.5</u>	<u>12.6</u>	0.37	2.5	56.3	4.38	<u>2.3</u>	<u>3.3</u>	<u>3.8</u>	<u>4.5</u>	<u>183.5</u>											
MT9433	60.5	34.3	60.5	<u>82.5</u>	<u>14.7</u>	1.50	<u>59.0</u>	<u>13.4</u>	0.38	2.5	<u>58.0</u>	3.06	<u>2.5</u>	<u>3.5</u>	<u>3.8</u>	<u>5.0</u>	<u>185.8</u>											
MT9508	60.6	36.4	47.6	52.4	<u>14.0</u>	<u>1.44</u>	<u>54.3</u>	<u>13.5</u>	<u>0.34</u>	2.3	<u>57.6</u>	2.56	<u>2.5</u>	<u>3.5</u>	<u>4.3</u>	<u>5.3</u>	<u>187.8</u>											
B91-0228	<u>62.0</u>	<u>37.7</u>	59.5	<u>72.5</u>	<u>14.4</u>	1.57	<u>53.9</u>	<u>13.4</u>	0.40	<u>3.3</u>	<u>57.8</u>	4.94	<u>3.5</u>	<u>4.3</u>	<u>3.0</u>	<u>5.0</u>	<u>177.8</u>											
N93-0119	59.4	31.0	<u>66.5</u>	<u>82.6</u>	<u>13.7</u>	1.50	<u>54.7</u>	<u>11.8</u>	0.41	2.3	56.4	4.44	<u>2.3</u>	<u>2.5</u>	<u>3.8</u>	<u>3.8</u>	<u>173.3</u>											
N93-0136	59.9	30.9	57.5	60.0	12.7	<u>1.45</u>	<u>56.3</u>	11.5	0.35	2.3	53.6	4.63	<u>2.3</u>	<u>3.0</u>	<u>5.5</u>	<u>3.8</u>	<u>163.5</u>											
N93-0211	60.2	31.1	<u>63.1</u>	68.9	<u>14.0</u>	1.53	<u>55.8</u>	<u>12.5</u>	0.38	2.5	<u>57.1</u>	3.75	<u>2.3</u>	<u>3.5</u>	<u>4.0</u>	<u>5.0</u>	<u>174.5</u>											
FA994601	60.9	31.6	54.3	51.8	<u>14.2</u>	<u>1.39</u>	<u>55.8</u>	<u>13.6</u>	0.35	<u>3.0</u>	<u>56.8</u>	3.50	<u>3.0</u>	<u>4.0</u>	<u>5.5</u>	<u>183.0</u>												
Sharpshotter	<u>63.0</u>	36.2	52.6	56.3	<u>13.2</u>	<u>1.42</u>	51.9	<u>12.4</u>	<u>0.31</u>	2.0	<u>58.5</u>	3.50	<u>2.0</u>	<u>3.0</u>	<u>5.0</u>	<u>175.0</u>												
BZ987-31	56.3	33.5	50.1	41.3	<u>14.3</u>	<u>1.48</u>	51.5	<u>13.6</u>	0.36	<u>4.5</u>	<u>58.0</u>	7.50	<u>3.0</u>	<u>4.0</u>	<u>5.5</u>	<u>196.5</u>												
BZ987-331	60.4	<u>43.1</u>	45.8	49.0	11.8	<u>1.40</u>	47.8	11.0	<u>0.34</u>	2.5	<u>58.4</u>	4.75	<u>2.0</u>	<u>1.0</u>	<u>3.0</u>	<u>3.3</u>	<u>167.0</u>											
T801.93	60.4	<u>41.0</u>	55.3	<u>73.1</u>	<u>13.4</u>	1.50	52.3	<u>12.0</u>	0.44	<u>2.8</u>	<u>58.0</u>	6.19	<u>2.5</u>	<u>3.3</u>	<u>4.0</u>	<u>4.6</u>	<u>183.5</u>											
T1052	58.6	35.8	56.1	60.5	<u>14.5</u>	1.58	53.1	<u>13.7</u>	0.39	<u>3.0</u>	<u>57.9</u>	6.06	<u>3.5</u>	<u>4.0</u>	<u>3.8</u>	<u>5.5</u>	<u>185.8</u>											
NX95-5106	<u>61.6</u>	<u>39.3</u>	55.7	59.5	12.0	<u>1.44</u>	51.9	10.6	<u>0.34</u>	2.0	<u>56.9</u>	4.25	<u>2.0</u>	<u>4.0</u>	<u>3.5</u>	<u>4.0</u>	<u>161.5</u>											
NX955106	56.9	30.5	61.8	50.4	<u>15.1</u>	1.52	49.4	<u>14.6</u>	0.39	<u>4.5</u>	<u>57.3</u>	8.00	<u>3.0</u>	<u>3.5</u>	<u>4.0</u>	<u>6.0</u>	<u>190.5</u>											
SDM50005	59.3	33.6	53.9	57.1	<u>14.0</u>	1.51	<u>53.9</u>	<u>13.4</u>	0.37	2.3	<u>56.8</u>	3.44	<u>2.3</u>	<u>3.3</u>	<u>3.3</u>	<u>5.0</u>	<u>183.8</u>											

1997 Spring Uniform Regional Nursery

**USDA / ARS
WHEAT QUALITY LAB
FARGO, ND**

**Table of URN Averages:
West Region**

REGION: West

VARIETY	TW (lb/bu)	KWT (gr)	SKWCS	NIR	WHEAT		FLOUR		MIX		BAKE PAT	TIME (min)	D C C G T	C C G T	LOAF VOL (cc)		
					HARDNESS INDEX	HARD- NESS	PRO (14% mb)	ASH (%)	EXT (14% mb)	PRO (14% mb)							
WA7802	58.8	36.3	52.8	55.6	<u>13.4</u>	<u>1.46</u>	52.7	<u>12.4</u>	<u>0.33</u>	2.3	<u>56.6</u>	4.63	<u>2.3</u>	<u>3.8</u>	3.0	<u>5.0</u>	<u>183.3</u>
TX92U231	56.5	28.8	60.2	51.8	<u>14.8</u>	<u>1.54</u>	47.9	<u>13.4</u>	<u>0.41</u>	2.0	55.6	4.50	<u>3.0</u>	<u>3.0</u>	3.0	<u>6.0</u>	<u>208.0</u>
TX92U231	55.0	28.4	59.3	52.0	<u>15.4</u>	<u>1.64</u>	47.9	<u>14.7</u>	<u>0.39</u>	<u>3.0</u>	<u>57.1</u>	4.00	<u>3.0</u>	<u>3.0</u>	3.0	<u>6.0</u>	<u>200.0</u>
TX92U2317	58.6	33.5	62.1	57.1	11.8	1.53	48.9	10.3	0.39	1.5	54.1	5.13	1.5	<u>4.0</u>	<u>3.5</u>	<u>4.0</u>	<u>159.5</u>
BW693	58.9	34.1	52.3	67.3	<u>14.4</u>	<u>1.50</u>	<u>54.4</u>	<u>13.5</u>	0.36	<u>2.8</u>	<u>57.2</u>	3.38	<u>2.3</u>	<u>3.5</u>	<u>5.3</u>	<u>5.3</u>	<u>183.5</u>

RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	0	3	6
	CRUMB COLOR (CC):	YELLOW	GREY	DULL	CREAMY	BUCKY	BRIGHT WHITE
	CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK		FINE	
	CRUMB TEXTURE (CT):	HARSH		COARSE		SILKY	

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 15

LOCATION: *Brookings, SD*
NURSERY: AYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION			HARD- NESS INDEX	WHEAT PRO (14% mb)	WHEAT ASH (14% mb)	NIR EXT (%)	FLOUR PRO (14% mb)	MIX ABS	BAKE TIME (min)	MIX TIME (min)	D C C G T VOL (cc)							
					A	B	C						MIX PAT										
CHRIS	59.0	28.7	68	5	3	6	19	72	74.3	65	15.0	1.71	65.3	14.8	0.44	62.5	2.75	3	3	5	202		
BUTTE	86	33.8	88	1	1	9	26	64	68.7	77	14.2	1.83	62.9	12.9	0.42	63.1	3	63.0	2.50	3	4	182	
SHARP	61.3	32.1	83	2	4	20	27	49	61.5	63	14.0	1.81	65.7	13.7	0.40	62.7	3	60.8	2.50	3	3	4	180
2375	60.1	31.3	70	1	3	11	24	62	72.7	69	13.4	1.81	65.1	12.3	0.42	59.6	4	61.0	3.75	3	3	4	173
RUSS	60.5	32.7	81	3	2	10	31	57	63.9	74	13.6	1.75	65.6	12.6	0.45	61.8	3	62.0	3.75	3	4	3	178
OXEN	59.1	28.7	65	3	1	4	23	72	69.6	69	14.5	1.65	68.1	13.5	0.39	62.5	7	62.5	4.25	3	3	5	185
FORGE	60.5	30.2	67	5	3	5	28	64	65.7	67	13.7	1.85	63.6	12.9	0.40	58.2	3	58.5	3.50	3	3	5	178
SD3219	61.6	32.3	77	4	3	11	27	59	66.3	64	12.9	1.67	61.1	11.3	0.42	55.5	3	57.0	5.00	3	4	4	162
SD3249	61.7	29.9	67	4	2	8	20	70	73.9	66	14.8	1.81	64.7	13.9	0.40	60.5	4	60.5	4.50	3	4	3	191
SD8108	59.8	30.6	69	5	3	11	32	54	63.9	63	14.0	1.78	62.2	13.6	0.38	57.9	5	60.0	4.50	4	4	3	178
SD8119	59.8	33.8	86	3	2	12	36	50	63.0	72	13.5	1.82	64.8	12.4	0.42	60.3	3	58.5	3.50	4	3	3	160
SD3310	61.3	34.6	83	2	8	29	26	37	55.8	51	14.2	1.69	64.5	13.5	0.36	60.0	3	60.0	3.50	3	3	4	188
SD3333	58.3	28.1	68	4	2	11	24	63	68.6	58	13.9	1.79	59.5	13.0	0.38	62.5	5	62.5	6.00	5	3	6	168
SD3335	61.1	35.7	81	3	2	13	32	53	63.6	73	14.2	1.82	64.2	13.0	0.42	61.8	2	62.0	3.00	3	4	5	200
SD3337	59.5	34.0	75	3	2	11	25	62	66.7	81	14.3	1.80	63.1	13.9	0.41	60.0	4	62.5	4.75	3	3	5	188
SD3345	61.2	32.5	79	2	0	3	21	76	73.9	86	14.7	1.91	64.5	13.7	0.42	62.5	3	63.5	3.00	3	3	5	185
SD3348	59.9	29.6	68	5	26	25	23	26	47.9	64	14.3	1.68	62.5	13.7	0.34	60.8	4	60.8	5.00	4	3	3	192
SD3355	58.0	29.1	60	6	1	5	16	78	74.5	65	14.1	1.76	63.1	13.2	0.46	59.6	3	60.5	3.00	3	3	4	182
SD3356	61.3	25.9	59	6	0	1	9	90	85.4	73	14.9	1.80	65.4	14.2	0.40	62.5	5	62.5	3.75	3	3	4	188
SD3357	62.1	33.2	82	1	2	16	29	53	64.2	63	14.6	1.90	62.4	13.6	0.38	60.8	3	62.5	3.50	3	3	5	192

1997 Spring Wheat Quality Report

LOCATION: *Brookings, SD*
NURSERY: AYT

**USDA / ARS
WHEAT QUALITY LAB
FARGO, ND**

DISTRIBUTION: A= % Soft

B= % Semi-Soft

≤ % Semi-Hard

1

UGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
UMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE
UMB GRAIN (CG):	IRREG, THICK		OPEN, THICK	FINE
UMB TEXTURE (CT):	HARSH			SILKY

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1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 16

LOCATION: *Crookston, MN*
NURSERY: AYT

FARGO, ND

VARIETY	SKWC'S HARDNESS				WHEAT			FLOUR		MIX		BAKE		MIX		D		C		C		LOAF VOL (cc)		
	DISTRIBUTION				HARDNESS	PRO	ASH	EXT		PRO	ASH	ABS		TIME (min)	C	C	C	G	T	C	G	T	Rating	
	(%)	A	B	C	D	INDEX	(%)	(14% mb)	(%)	MIX	PAT	Rating	C	G	T	C	G	T	C	G	T			
CHRIS	58.5	26.0	61	3	1	3	7	89	101.7	64	15.7	1.88	66.8	15.1	0.56	60.0	4	60.0	2.75	3	3	6	5	210
2375	59.7	32.2	63	4	1	5	18	76	80.8	67	14.4	1.78	68.4	13.8	0.49	58.6	2	58.8	3.00	2	3	5	4	202
VERDE	57.2	28.1	68	3	1	4	20	75	76.2	71	14.3	1.80	70.1	13.4	0.46	56.5	2	57.5	3.00	2	3	5	4	195
NORM	55.2	29.2	59	4	3	8	19	70	72.4	64	13.6	1.84	65.3	13.3	0.51	58.2	3	58.5	3.25	2	3	5	4	190
MN93262	58.1	31.8	62	3	2	9	25	64	72.1	62	14.4	1.63	69.0	13.5	0.49	60.0	3	62.0	3.00	3	3	5	4	202
MN93377	58.6	29.2	60	5	0	2	12	86	84.5	63	14.3	1.71	64.2	12.4	0.47	55.3	2	61.0	4.00	2	3	3	4	202
MN94053	58.6	28.8	54	6	3	8	15	74	85.2	48	14.3	1.97	59.0	13.2	0.56	55.8	2	60.0	3.00	2	4	3	4	190
MN94151	57.8	28.8	65	5	1	5	20	74	76.0	59	13.9	1.81	62.3	12.9	0.47	55.5	2	55.5	2.25	2	4	5	4	202
MN95002	60.0	29.1	51	5	1	10	18	71	81.0	60	14.7	1.96	63.7	14.0	0.42	61.8	3	58.0	2.75	3	3	5	5	208
MN95023	58.2	30.0	66	4	1	7	19	73	76.8	56	13.4	1.75	66.2	12.8	0.42	62.1	3	58.0	2.75	3	3	3	5	198
MN95051	57.8	26.7	44	6	1	2	8	89	90.5	60	13.6	1.59	64.0	13.2	0.46	62.7	3	58.8	3.25	3	3	4	5	192
MN95084	59.1	28.7	64	4	1	3	16	80	82.5	66	13.3	1.87	64.2	12.0	0.59	55.8	3	60.0	4.25	3	3	3	5	182
MN95102	57.7	28.4	60	5	1	2	7	90	99.2	72	14.8	1.91	64.8	14.0	0.61	64.4	4	61.0	1.75	2	3	3	5	175
MN95124	59.4	27.0	39	7	34	14	10	42	55.7	27	13.3	1.99	41.2	12.1	0.46	56.9	3	58.8	3.00	2	5	3	4	172
MN95201	58.0	29.7	64	4	26	25	17	32	51.2	57	14.6	1.87	66.2	13.5	0.43	59.3	3	58.5	2.50	2	4	3	5	191
MN95211	59.3	31.3	77	2	5	18	22	55	67.7	77	14.7	1.79	61.5	13.7	0.47	60.8	4	56.8	3.00	3	3	5	6	212
MN95222	58.6	29.8	66	3	6	7	22	65	69.4	61	14.7	1.71	65.1	13.7	0.43	60.8	3	58.8	2.50	3	4	3	6	190
MN95223	57.8	27.7	55	5	3	13	18	66	72.8	56	14.4	1.88	61.7	13.7	0.41	60.0	3	58.5	2.75	3	4	5	5	192
MN95229	59.6	30.2	61	5	1	2	15	82	86.0	70	15.2	1.77	61.9	14.0	0.44	60.0	3	60.5	2.50	3	3	5	6	209
MN95230	56.4	26.3	55	5	3	9	18	70	78.0	46	13.9	1.94	62.3	12.8	0.38	57.6	3	57.5	3.50	3	3	3	5	205

1997 Spring Wheat Quality Report

LOCATION: *Crookston, MN*
NURSERY: *AYT*

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 16 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	(lb/bu)	SKWCS HARDNESS				NIR (14% mb)	WHEAT		PRO ASH (14% mb)	FLOUR		PRO ASH (14% mb)	MIX		BAKE TIME (min)	MIX		D C C LOAF VOL (cc)				
				DISTRIBUTION					HARD-	EXT		ABS	PAT		TIME	C	C	C	C					
				A	B	C	D		NESS	NESS		NESS	NESS		TIME	C	C	T	G					
MN95231	58.6	27.1	51	6	1	1	7	91	101.3	61	13.7	1.67	59.5	11.8	0.48	55.0	3	58.5	4.75	2	3	5	198	
MN95242	56.5	29.6	59	6	1	5	24	70	73.8	53	14.0	1.67	58.2	13.2	0.46	56.2	2	58.5	2.75	2	4	5	5	205
MN95244	55.8	29.9	51	7	3	3	17	77	74.8	55	15.3	1.67	57.2	14.1	0.53	60.8	3	60.8	2.75	2	4	3	5	182
MN95268	56.5	25.6	29	12	1	4	13	82	79.3	71	13.8	1.58	62.1	12.6	0.41	59.3	3	59.0	6.00	3	3	3	6	206
MN95279	53.2	25.8	29	13	4	12	15	69	67.6	51	14.3	1.61	56.5	13.7	0.40	58.2	3	57.0	3.75	3	3	5	5	190
MN95284	59.7	29.0	64	3	1	4	18	77	81.2	60	13.7	1.56	62.0	12.8	0.41	60.0	3	59.0	3.00	3	4	6	4	210
MN95285	58.2	29.9	62	3	3	10	26	61	70.4	59	14.2	1.55	61.3	13.3	0.43	59.0	3	60.5	3.75	3	4	6	4	210
MN95286	60.5	28.5	64	3	1	5	17	77	76.8	77	13.2	1.61	62.5	11.8	0.44	53.8	2	54.8	3.00	3	3	5	5	188
MN95304	56.1	29.3	61	5	2	6	22	70	75.8	71	15.4	1.79	62.7	15.1	0.44	59.0	3	57.0	2.50	3	4	6	5	208
MN95305	56.2	29.8	61	5	0	9	18	73	80.1	49	14.3	1.74	60.2	13.4	0.44	56.5	2	55.5	2.75	3	3	3	5	200

DISTRIBUTION: A= % Soft

RATINGS:

B= % Semi-Soft
C= % Semi-Hard
D= % Hard

0

3

DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE
CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK	FINE
CRUMB TEXTURE (CT):	HARSH	COARSE	SILKY	

				6

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 17

LOCATION: *Day Co.*
NURSERY: *AYT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S DISTRIBUTION A B C D	HARD- NESS INDEX	WHEAT		FLOUR		MIX		BAKE TIME (min)	MIX TIME (min)	D C C G T VOL Rating	LOAF (cc)								
							WIR	HARD- NESS	PRO ASH (14% mb)	ASH (14% mb)	EXT	PRO ASH (14% mb)	ASH (14% mb)											
CHRIS	58.2	25.2	53	5	0	2	11	87	85.7	62	14.0	1.74	62.0	13.6	0.39	60.3	4	59.5	3.00	3	3	5	5	200
BUTTE 86	60.9	31.1	80	1	1	3	15	81	82.5	70	13.1	1.59	65.6	11.7	0.38	59.0	3	59.0	3.00	3	3	3	4	178
SHARP	61.6	30.0	77	1	1	8	25	66	73.7	56	12.6	1.60	64.5	12.3	0.35	60.0	3	58.0	2.75	3	3	5	4	175
2375	59.8	30.9	62	2	2	4	18	76	81.5	62	13.0	1.69	63.6	11.8	0.40	58.2	3	58.5	3.25	3	3	5	4	175
RUSS	59.5	30.9	77	2	0	8	22	70	70.9	74	13.1	1.59	63.3	12.2	0.40	59.3	4	59.0	3.75	3	3	3	4	188
OXEN	58.6	28.7	67	2	3	9	24	64	70.1	62	12.9	1.65	67.6	11.8	0.35	60.3	4	58.5	3.50	3	3	5	4	183
FORGE	61.3	29.7	76	2	3	13	25	59	65.6	52	11.6	1.65	64.7	10.6	0.33	55.3	2	53.0	3.50	3	3	5	4	183
SD3219	63.0	29.7	72	3	1	4	21	74	72.2	65	11.4	1.61	65.1	10.1	0.38	53.2	2	56.5	3.50	3	3	3	5	173
SD3249	61.4	29.1	70	2	2	6	24	68	79.0	60	12.5	1.67	62.6	11.5	0.37	55.8	3	56.0	3.50	3	3	3	4	173
SD8108	62.0	29.6	68	2	5	13	28	54	66.6	43	12.9	1.57	59.0	12.0	0.34	56.9	5	59.5	5.25	3	5	4	5	198
SD8119	60.3	30.9	81	2	2	9	25	64	67.6	68	12.8	1.59	55.1	11.7	0.37	56.5	2	56.5	3.50	3	3	3	5	185
SD3310	62.1	29.7	83	2	6	19	24	51	62.3	53	12.9	1.75	60.1	12.3	0.35	57.6	2	56.0	4.00	3	3	5	5	191
SD3333	59.5	27.7	67	4	1	10	22	67	71.6	53	12.7	1.58	55.6	11.9	0.34	59.3	4	58.5	6.00	4	3	3	5	193
SD3335	60.6	34.9	85	2	3	15	34	48	64.5	68	12.5	1.64	60.3	11.5	0.38	56.2	2	56.5	2.75	2	3	5	4	171
SD3337	60.5	31.1	76	2	1	3	22	74	77.1	79	14.3	1.48	58.8	13.4	0.37	60.3	5	60.5	4.25	3	3	3	5	208
SD3345	60.5	28.8	75	2	0	3	11	86	85.3	68	12.9	1.60	60.7	11.8	0.38	59.0	3	59.0	3.25	3	3	5	5	192
SD3348	59.4	27.8	64	4	2	10	28	60	69.7	57	13.1	1.43	64.0	12.7	0.33	58.6	4	56.8	4.00	3	3	6	5	198
SD3355	60.2	29.8	63	4	1	6	21	72	73.7	68	12.9	1.55	61.8	11.8	0.39	56.2	3	60.5	3.25	2	3	5	5	195
SD3356	59.0	25.7	43	4	1	1	8	90	89.0	73	14.3	1.71	63.3	13.5	0.39	61.8	4	60.0	3.50	3	2	5	5	208
SD3357	59.4	32.3	84	1	2	10	28	60	70.5	64	13.6	1.67	59.3	13.1	0.37	58.6	3	57.5	2.75	3	3	3	5	210

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 17 (cont)

LOCATION: *Day Co.*
NURSERY: *AYT*

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			HARD- NESS	WHEAT (14% mb)	FLOUR		MIX ABS (14 % mb)	BAKE TIME (min)	D C G T VOL (cc)										
					A	B	C			PRO	ASH													
SD3367	59.9	28.2	73	2	2	5	24	69	74.1	54	12.6	1.53	60.6	11.9	0.37	58.6	2	56.8	2.75	3	4	5	5	192
SD3369	61.2	30.1	71	2	0	3	16	81	82.0	69	14.1	1.63	59.8	12.7	0.35	56.2	2	56.5	2.50	3	3	3	5	197
SD3390	61.6	28.7	66	2	1	3	17	79	77.2	57	13.5	1.57	59.5	12.4	0.35	58.2	3	60.0	3.00	3	3	4	5	200

DISTRIBUTION: A= % Soft

0

RATINGS:	DOUGH CHAR (DC): CRUMB COLOR (CC): CRUMB GRAIN (CG): CRUMB TEXTURE (CT):	STICKY-WEAK YELLOW IRREG, THICK HARSH	PLIABLE GREY DULL OPEN, THICK COARSE	ELASTIC CREAMY	BUCKY BRIGHT WHITE FINE SILKY
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B= % Semi-Soft

C= % Semi-Hard

D= % Hard

3

0

6

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 18

LOCATION: *Groton, SD*
NURSERY: *AYT*

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION			HARD- NESS INDEX	WHEAT (14% mb)	FLOUR		MIX TIME (min)	BAKE ABS	MIX PAT	TIME C	C G	C T	LOAF VOL (cc)						
					A	B	C			EXT (%)	PRO ASH (14 % mb)													
CHRIS	56.4	22.6	23	8	0	2	8	90	79.2	60	15.6	1.84	62.6	15.0	0.41	58.2	4	58.5	3.00	3	3	3	6	205
BUTTE 86	58.8	28.7	60	2	1	3	11	85	78.6	74	15.0	1.73	59.8	14.0	0.42	59.3	3	59.0	3.25	3	3	5	6	198
SHARP	61.0	28.8	63	2	3	13	28	56	65.5	58	15.0	1.74	57.1	14.5	0.37	60.0	2	60.0	2.50	3	3	5	6	192
2375	58.8	27.3	36	5	2	6	25	67	69.4	64	14.6	1.71	59.1	14.0	0.43	59.0	3	59.0	2.75	2	3	5	6	202
RUSS	59.4	29.8	74	1	1	2	16	81	71.4	65	15.0	1.70	60.1	14.3	0.41	60.8	3	60.8	3.25	3	4	6	6	211
OXEN	58.8	26.9	56	4	1	6	21	72	69.3	70	14.5	1.74	61.6	13.6	0.35	59.3	3	59.0	3.50	3	5	5	6	210
FORGE	60.3	28.2	56	2	2	8	25	65	66.5	51	14.6	1.72	51.6	13.9	0.35	60.3	3	60.5	3.00	3	3	5	6	212
SD3219	59.9	28.8	50	4	2	7	17	74	68.0	64	13.9	1.58	51.9	12.8	0.40	59.6	5	59.5	4.50	3	3	5	6	190
SD3249	61.8	28.3	55	2	0	6	23	71	68.7	63	15.0	1.70	60.1	14.3	0.38	60.8	4	58.8	2.75	3	3	5	6	213
SD8108	60.9	30.5	65	2	2	11	32	55	61.1	57	14.6	1.75	55.8	14.2	0.35	59.0	4	59.0	3.00	3	3	5	6	208
SD8119	59.1	29.4	71	2	1	3	14	82	70.9	73	15.0	1.78	60.6	14.5	0.42	61.8	3	62.0	2.75	3	4	5	5	198
SD3310	61.7	29.8	76	0	21	31	25	23	46.8	43	15.3	1.56	55.6	14.9	0.35	59.6	3	59.5	2.50	3	4	5	6	221
SD3333	58.6	25.3	51	5	2	8	24	66	66.2	56	14.4	1.70	58.5	13.8	0.36	65.4	5	61.5	4.50	4	4	3	6	217
SD3335	60.7	32.6	78	2	1	4	18	77	68.5	72	14.8	1.58	62.6	13.8	0.40	60.8	3	60.8	2.50	3	4	5	6	200
SD3337	59.3	31.7	77	2	0	3	20	77	72.6	74	16.3	1.65	59.3	15.4	0.39	60.0	3	60.0	3.50	3	4	5	6	220
SD3345	61.4	28.2	65	2	1	1	11	87	75.4	75	15.3	1.73	59.8	14.9	0.40	61.8	4	58.0	3.25	3	3	5	6	216
SD3348	58.6	26.3	55	3	2	7	21	70	67.8	55	14.8	1.65	62.1	14.1	0.38	60.3	3	57.0	3.50	3	4	3	6	218
SD3355	59.4	27.5	60	4	0	2	12	86	74.7	69	13.7	1.54	62.3	12.6	0.40	55.5	2	56.5	2.75	2	4	5	6	189
SD3356	60.1	24.0	37	5	0	1	7	92	81.6	70	14.8	1.65	64.3	13.9	0.36	61.8	4	59.5	3.75	3	3	3	6	214
SD3357	59.9	31.6	75	1	5	13	34	48	59.8	61	15.2	1.81	57.0	15.1	0.35	59.6	3	58.5	2.75	3	3	3	6	220

1997 Spring Wheat Quality Report

LOCATION: *Groton, SD*
NURSERY: *AYT*

USDA / ARS
WHEAT QUALITY LAB

Table 18 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION A B C D	SKWCS HARDNESS INDEX	NIR (14% mb)	WHEAT		MIX (14 % mb)	BAKE (min)	MIX (min)	D TIME	C C G T	C C G T	LOAF Rating								
								PRO	ASH															
SD3367	59.7	30.6	79	1	2	9	27	62	68.7	71	15.5	1.76	60.7	15.2	0.37	59.6	2	58.8	1.75	2	3	5	6	201
SD3369	62.8	30.1	66	1	1	2	18	79	74.2	67	15.3	1.69	58.6	14.5	0.37	60.3	2	58.5	1.75	2	4	3	5	184
SD3390	61.4	29.0	64	2	2	6	25	67	68.8	63	14.8	1.61	61.3	13.9	0.35	58.6	3	59.0	2.50	3	3	3	6	210

DISTRIBUTION: A= % Soft

B= % Semi-Soft
C= % Semi-Hard
D= % Hard

RATINGS:

DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE
CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK	
CRUMB TEXTURE (CT):	HARSH		COARSE	FINE
			SILKY	

0

MIX (min)

BAKE (min)

TIME (min)

C (min)

G (min)

T (min)

Rating

MIX (min)

BAKE (min)

TIME (min)

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1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 19

LOCATION: Morris, MN
NURSERY: AYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A (%)	B (%)	C (%)	D (%)	SKWC'S HARDNESS		NIR (14% mb)	WHEAT PRO ASHI (14% mb)	FLOUR EXT (%)	FLOUR PRO ASH (%)	MIX ABS (14% mb)	MIX PAT	BAKE ABS	TIME (min)	MIX C	D C	C C	C G	T T	LOAF VOL (cc)														
									DISTRIBUTION																													
									A INDEX	D INDEX																												
CHRIS	58.5	26.2	56	4	1	3	8	88	93.9	73	16.1	1.82	58.3	15.1	0.40	57.6	3	60.5	2.75	3	4	3	6	226														
2375	58.0	30.7	48	4	2	10	15	73	80.7	65	14.2	1.92	55.3	12.5	0.44	55.5	2	56.8	4.00	3	3	5	5	192														
VERDE	57.6	29.5	72	2	0	6	15	79	80.8	72	14.5	1.82	57.6	13.0	0.39	56.5	2	56.5	3.00	3	5	6	5	192														
NORM	57.4	29.4	68	1	1	5	16	78	83.4	64	14.8	1.78	55.8	13.2	0.44	56.9	2	58.8	3.75	3	3	3	5	202														
MN93262	58.4	34.9	75	2	4	11	23	62	73.9	72	14.8	1.74	52.1	13.7	0.41	59.0	2	59.0	3.00	3	6	3	5	216														
MN93377	57.5	27.7	43	3	2	2	11	85	87.7	70	14.1	1.97	48.6	12.2	0.47	54.3	2	59.0	5.00	3	5	6	6	192														
MN94053	59.6	32.6	71	2	1	9	23	67	79.4	61	14.7	1.82	50.0	14.1	0.41	57.6	2	59.5	2.50	3	1	5	5	210														
MN94151	58.2	29.9	65	3	1	8	19	72	76.8	63	14.6	1.76	45.9	13.2	0.40	55.0	1	56.0	2.25	2	1	6	4	181														
MN95002	59.4	29.4	53	3	3	7	23	67	76.0	58	15.0	1.77	50.0	13.8	0.44	55.8	2	58.5	3.00	3	1	3	4	200														
MN95023	57.5	31.2	73	1	1	8	27	64	77.0	58	14.1	1.88	52.3	12.8	0.42	55.0	2	56.5	3.25	3	4	3	5	212														
MN95051	59.9	29.6	67	1	0	4	19	77	80.7	69	14.2	1.78	50.2	12.7	0.41	54.6	2	58.0	3.25	3	5	3	6	208														
MN95084	59.5	29.9	67	2	0	7	23	70	74.3	58	13.6	1.77	56.0	11.4	0.40	53.5	2	58.5	4.75	3	5	3	5	173														
MN95102	58.2	28.0	68	2	0	3	9	88	87.2	63	14.4	1.75	56.4	12.7	0.44	58.6	2	58.8	2.75	3	4	6	5	212														
MN95124	59.7	27.3	40	3	47	13	9	31	43.7	19	14.3	1.99	37.9	11.7	0.39	55.0	2	55.5	2.75	3	4	6	5	184														
MN95201	57.8	28.7	68	2	2	10	25	63	74.4	50	13.8	1.66	60.4	12.0	0.35	57.9	3	59.0	3.00	3	4	5	6	190														
MN95211	59.0	29.7	70	2	1	1	9	89	85.8	64	14.9	1.82	55.3	13.3	0.43	56.9	3	58.5	3.75	3	4	5	6	212														
MN95222	58.0	28.4	65	3	1	7	15	77	79.0	58	15.1	1.80	56.9	14.1	0.39	58.2	2	58.5	3.50	3	3	3	6	222														
MN95223	58.2	31.6	76	1	2	13	26	59	72.3	52	15.1	1.80	57.1	13.6	0.37	56.2	2	56.5	3.25	3	3	3	6	212														
MN95229	60.3	30.7	71	1	1	2	14	83	87.8	56	15.5	1.83	54.4	14.1	0.43	57.9	3	60.5	3.25	3	3	5	5	202														
MN95230	59.0	30.0	60	2	11	23	20	46	62.5	35	14.5	1.68	56.9	13.6	0.33	56.2	2	57.0	3.25	3	5	3	6	204														

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Table 19 (cont)

LOCATION: *Morris, MN*
NURSERY: *AYT*

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A (%)	B (%)	C (%)	D (%)	SKWCS HARDNESS DISTRIBUTION		NIR (14% mb)	WHEAT PRO ASH (%)		FLOUR PRO ASH (14 % mb)		ABS (%)	PAT (%)	MIX BAKE		D C C G T VOL (cc)				
									HARD- NESS INDEX	INDEX		WHEAT PRO ASH (%)	WHEAT ASH (%)	EXT (%)		MIX PRO ASH (%)								
MN95231	58.3	26.4	42	4	0	3	10	87	89.1	65	13.8	1.76	51.2	11.4	0.46	53.8	2	57.0	3.50	3	1	3	5	180
MN95242	55.3	31.2	68	2	1	9	26	64	71.6	50	14.5	1.85	52.3	13.1	0.44	53.8	1	57.5	3.00	3	3	5	5	208
MN95244	59.1	32.2	67	2	1	2	14	83	81.7	64	15.2	1.87	52.3	13.7	0.46	59.3	3	62.5	3.25	3	5	6	6	202
MN95268	57.0	27.3	64	2	0	1	9	90	85.8	64	14.2	1.70	50.9	12.5	0.39	59.3	3	60.8	5.25	3	4	3	6	202
MN95279	52.3	24.6	17	12	5	6	20	69	73.0	40	14.7	1.80	42.4	13.7	0.42	59.3	3	61.0	3.50	3	3	3	6	215
MN95284	59.3	28.3	57	3	1	3	12	84	87.1	60	14.5	1.68	56.2	13.1	0.40	58.6	2	60.0	3.25	3	4	4	6	228
MN95285	58.0	31.1	69	1	1	6	16	77	81.4	57	14.8	1.69	55.0	13.3	0.40	58.6	2	60.5	3.00	3	1	5	6	212
MN95286	58.4	26.9	54	3	0	2	10	88	82.7	64	13.7	1.77	59.9	11.6	0.43	56.9	3	59.0	2.25	2	1	6	4	185
MN95304	57.2	33.7	72	3	1	5	23	71	77.1	56	16.0	1.82	58.7	14.2	0.41	60.0	3							
MN95305	55.3	28.0	43	2	1	3	8	88	89.8	46	14.9	1.86	50.9	13.7	0.43	56.9	2	59.0	3.50	3	3	3	6	215

DISTRIBUTION: A= % Soft

RATINGS:

B= % Semi-Soft	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
C= % Semi-Hard	CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE
D= % Hard	CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK	FINE
	CRUMB TEXTURE (CT):	HARSH		COARSE	SILKY

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USDA / ARS WHEAT QUALITY LAB

Table 20

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS			WHEAT PRO INDEX	WHEAT ASH (14% mb)	FLOUR			MIX ABS (14% mb)	BAKE			D C Rating	C C G T VOL (cc)						
					DISTRIBUTION					EXT				PRO	ASH	MIX	BAKE							
					A	B	C			INDEX	NESS				ABS	PAT	TIME	C C C C G T VOL (cc)						
CHRIS	59.0	25.7	68	3	1	3	8	88	87.0	61	15.0	1.73	62.3	14.8	0.47	60.3	3	58.8	2.75	3	3	4	203	
MARSHAL	58.5	26.2	54	6	2	8	12	78	73.7	50	13.4	1.83	61.7	12.8	0.42	55.0	2	54.0	3.00	3	3	5	2	188
WHEATON	56.3	27.1	58	6	3	10	23	64	66.4	51	12.7	1.73	59.5	11.3	0.48	58.2	2	56.5	3.00	3	4	5	2	180
NORM	57.7	29.9	74	3	3	9	23	65	66.7	58	12.9	1.64	60.1	11.8	0.45	60.0	3	58.0	3.50	3	3	6	2	200
VERDE	59.5	29.7	76	2	0	9	23	68	67.7	71	13.3	1.69	64.3	12.3	0.41	59.6	2	57.0	2.75	3	3	5	4	192
BACUP	61.4	27.1	28	7	2	4	9	85	91.5	61	16.4	1.84	57.7	16.1	0.41	65.4	4	61.5	2.25	3	3	5	5	198
BUTTE 86	58.5	30.9	76	3	2	5	23	70	72.2	69	14.5	1.67	59.3	13.4	0.41	62.1	3	60.0	2.50	2	3	5	4	188
GRANDIN	60.6	32.3	78	3	1	11	21	67	66.3	65	14.6	1.79	60.3	13.4	0.42	59.3	3	59.0	3.00	3	5	5	4	208
KULM	58.2	27.4	63	5	4	8	21	67	65.8	63	15.7	1.89	58.7	14.8	0.41	64.4	3	60.5	2.25	3	4	3	5	200
TRENTON	59.8	32.2	73	2	2	9	22	67	66.3	64	15.0	1.71	58.4	14.2	0.42	61.8	3	61.0	3.50	3	5	5	4	212
SHARP	60.3	30.2	58	5	3	13	28	56	65.9	54	13.9	1.73	60.7	13.2	0.41	58.6	2	60.0	2.50	2	3	6	5	190
OXEN	57.6	25.7	54	4	0	2	9	89	85.8	61	14.3	1.63	62.3	12.9	0.38	60.3	4	59.5	3.00	3	5	6	5	208
FORGE	60.6	29.6	76	3	3	10	27	60	64.3	53	14.4	1.78	59.2	13.1	0.36	60.5	3	59.5	2.75	3	4	5	5	210
LARS	58.0	29.1	78	2	1	11	24	64	66.3	74	13.2	1.74	61.5	12.1	0.44	56.9	3	58.0	3.75	3	4	3	4	198
HAMER	58.4	30.9	81	1	4	13	26	57	62.4	76	13.6	1.70	62.0	12.7	0.45	62.1	3	59.0	3.00	3	1	5	5	204
GUNNER	61.2	27.7	73	3	0	0	11	89	75.7	86	15.8	1.81	58.3	14.3	0.44	59.3	2	60.0	3.00	3	3	3	5	207
NORA	59.0	29.6	50	5	1	6	21	72	70.0	68	15.3	2.04	57.2	14.3	0.52	57.9	2	58.0	3.25	3	4	3	5	215
N92-0434	59.9	32.2	76	3	4	13	26	57	64.9	68	14.6	1.67	59.8	13.2	0.41	59.0	3	59.0	3.50	3	4	3	5	212
SHARPSH	62.2	29.9	73	2	3	21	27	49	59.1	67	14.2	1.65	59.4	13.1	0.38	60.3	2	60.8	2.25	3	3	5	5	202
2375	61.3	31.3	69	3	0	7	25	68	66.1	71	14.1	1.78	55.4	12.6	0.43	57.9	2	58.0	2.75	3	4	3	5	208

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USDA / ARS WHEAT QUALITY LAB

Table 20 (cont)

LOCATION: North
NURSERY: AYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			HARD- NESS INDEX	WHEAT		FLOUR		MIX (14% mb)	BAKE ABS (mln)	MIX TIME (min)	D C G T Rating	C C G T LOAF (cc)							
					A	B	C		PRO	ASH	EXT	PRO	ASH											
									(%)	(%)	(%)	(%)	(%)											
2370	59.0	27.2	45	8	2	5	27	66	66.1	75	14.3	1.72	55.6	13.2	0.42	59.6	2	57.0	3.25	3	3	6	5	214
AC MAJES	59.2	28.0	66	3	0	9	20	71	69.3	83	15.0	1.83	60.5	14.3	0.41	59.6	3	59.5	2.75	3	5	6	5	213
AC DOMAI	58.0	27.5	66	3	1	5	16	78	76.7	79	16.0	1.89	61.7	15.2	0.46	63.7	3	60.8	2.50	3	3	5	5	192
AC CORA	59.1	27.4	67	2	1	4	15	80	83.0	82	15.5	1.84	62.0	14.9	0.49	60.3	2	60.5	2.25	3	3	3	5	205
KEENE	60.0	27.6	52	6	2	4	12	82	73.4	78	15.1	1.90	58.4	14.0	0.42	60.8	3	60.8	2.50	3	3	3	5	203
SBE0050	58.9	29.1	50	6	2	4	15	79	70.5	70	13.8	1.75	56.5	12.5	0.45	56.5	2	57.5	3.50	3	4	5	5	201
MN93413	57.1	28.8	53	5	1	7	15	77	69.6	68	13.0	1.68	59.8	11.6	0.45	60.3	3	58.0	3.00	3	5	3	4	199
MN91309	57.5	28.1	46	8	2	9	25	64	65.3	69	14.3	1.78	60.2	13.2	0.46	59.3	3	60.0	3.50	3	5	3	4	210
MN93434	60.5	32.7	76	2	0	7	27	66	67.9	81	15.0	1.75	62.6	14.1	0.41	60.3	3	60.5	3.00	3	3	3	5	202
MN94123	58.7	26.6	48	8	3	4	13	80	76.7	84	13.0	1.71	62.6	11.1	0.46	55.5	2	57.0	2.75	2	4	3	4	190
MN94055	59.5	31.9	69	3	7	15	30	48	59.1	60	13.2	1.79	59.9	12.4	0.43	55.3	1	56.5	2.25	2	1	3	4	190
MN94200	59.4	27.1	60	5	1	3	11	85	77.8	84	13.6	1.67	58.7	12.5	0.43	56.9	2	58.8	3.00	2	3	5	5	210
SD3249	60.9	28.4	65	4	3	10	24	63	66.9	74	15.1	1.69	62.7	14.3	0.38	60.8	3	60.8	3.25	3	3	3	5	228
RUSS	58.7	29.6	70	3	1	5	18	76	70.9	73	13.8	1.69	60.7	13.1	0.42	59.3	3	62.5	4.00	3	4	5	5	208
EXP 818J	59.1	29.3	70	3	3	10	26	61	68.2	72	13.1	1.65	65.6	11.9	0.43	58.2	3	60.5	3.25	3	3	4	4	218

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

0	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
3	YELLOW	GREY	BULL	BRIGHT WHITE
	IRREG, THICK		OPEN, THICK	FINE
	HARSH		COARSE	SILKY

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USDA / ARS WHEAT QUALITY LAB

Table 21

LOCATION: NURSERY:	South AYT												Fargo, ND											
	VARIETY (lb/bu)	TW (gr)	KWT (%)	LG (%)	SM (%)	A (%)	B (%)	C (%)	D (%)	SKWC'S HARDNESS DISTRIBUTION		HARD- NESS INDEX	WHEAT PRO (14% mb)	ASH (%)	EXT (%)	PRO ASH (14% mb)	PAT (%)	FLOUR		MIX TIME (min)	BAKE ABS	MIX TIME	C C G T	LOAF VOL (cc)
NIR										WHEAT PRO (14% mb)	MIX						MIX	BAKE						
CHRIS	25.8	57	4	1	2	6	91	90.4	70	15.7	1.86	57.7	15.3	0.45	59.6	3	59.5	2.75	4	3	3	4	222	
MARSHAL	25.2	40	6	1	5	18	76	71.1	63	13.9	2.01	59.4	13.3	0.47	60.0	3	60.0	2.50	3	3	3	4	195	
WHEATON	28.4	57	3	2	5	23	70	70.7	63	14.3	1.94	58.6	13.6	0.49	62.5	3	62.5	3.00	3	3	3	3	202	
NORM	57.5	30.1	71	3	2	8	22	68	68.4	69	14.3	1.94	55.7	13.5	0.46	62.7	3	62.8	2.75	3	3	6	5	202
VERDE	28.8	72	2	1	5	23	71	71.0	75	14.4	1.83	60.0	13.0	0.43	60.8	3	58.5	3.00	3	3	6	4	206	
BACUP	27.6	33	5	1	5	11	83	89.3	66	16.6	1.97	50.0	16.4	0.41	63.1	3	63.0	2.50	3	3	3	5	212	
BUTTE	86	60.1	80	1	1	2	16	81	75.6	81	15.4	1.88	55.3	14.8	0.42	63.1	3	61.0	2.75	3	3	3	5	209
GRANDIN	33.0	81	2	2	4	20	74	69.1	84	15.5	1.86	54.2	14.8	0.43	61.8	3	62.0	3.00	4	3	3	5	212	
KULM	28.2	70	3	1	6	19	74	71.6	68	15.4	1.92	57.2	14.9	0.38	61.8	3	62.0	3.00	3	3	3	5	228	
TRENTON	31.5	74	2	1	6	16	77	70.7	73	14.8	1.82	56.1	14.2	0.42	60.8	3	62.8	3.75	3	5	3	5	216	
SHARP	30.3	75	2	1	9	21	69	74.7	58	14.8	1.82	58.4	14.1	0.37	60.8	3	60.8	2.25	3	3	3	4	191	
OXEN	59.0	29.2	66	3	0	3	22	75	74.6	73	14.4	1.94	60.9	13.9	0.41	61.8	3	62.0	3.25	4	3	3	4	198
FORGE	59.7	28.1	57	4	1	6	12	81	72.5	63	14.8	1.93	53.7	13.7	0.39	61.8	3	62.0	3.00	4	3	3	4	180
LARS	56.8	29.9	80	1	1	3	20	76	70.9	75	14.1	1.92	59.2	13.5	0.48	60.8	4	62.0	3.50	4	3	3	5	198
HAMER	57.6	30.3	81	1	1	6	23	70	68.5	80	15.1	1.89	58.7	14.0	0.47	62.5	4	62.5	2.50	3	3	3	5	216
GUNNER	59.0	26.6	58	5	0	1	9	90	81.9	81	16.0	2.08	55.1	15.8	0.47	62.7	3	64.8	2.75	3	4	5	5	228
NORA	57.6	31.0	50	4	1	5	18	76	72.8	66	15.8	2.36	51.6	14.9	0.54	62.5	3	65.0	3.50	3	4	4	5	205
N92-0434	58.3	32.6	73	2	2	8	25	65	67.0	64	14.7	1.94	53.1	14.2	0.43	62.5	4	64.5	3.50	3	4	6	5	230
SHARPSH	61.9	30.2	74	2	2	10	23	65	65.4	66	14.8	1.87	54.7	14.1	0.41	62.1	3	62.0	2.50	3	3	3	4	203
2375	59.5	30.3	62	4	1	5	24	70	70.0	73	14.3	1.93	55.9	13.7	0.42	58.6	3	62.8	3.25	3	3	4	5	211

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Table 21 (cont)

LOCATION: *South*
NURSERY: AYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION A B C D	SKWCS HARDNESS		HARD- NESS	WHEAT		FLOUR		MIX TIME (min)	BAKE ABS	MIX PAT	D TIME	C G	C G	C T	LOAF Rating				
						NIR	DURUM INDEX		PRO ASH	EXT	PRO ASH	EXT												
						(14% mb)	(%)		(%)	(%)	(14% mb)	(%)												
2370	58.5	28.2	57	4	2	6	21	71	68.8	71	15.1	1.97	50.2	13.9	0.49	61.4	3	61.5	3.25	3	4	5	208	
AC MAJES	57.0	27.2	50	6	1	4	15	80	70.4	76	15.9	1.98	57.1	15.6	0.44	61.4	3	61.5	2.75	3	3	5	248	
AC DOMAI	59.0	29.1	74	2	0	2	14	84	76.2	79	16.2	2.04	58.4	15.4	0.46	62.5	3	62.5	2.25	2	3	3	4	200
AC CORA	57.7	27.6	62	4	0	2	11	87	83.0	74	15.5	1.97	57.0	14.5	0.48	58.6	2	61.5	2.75	2	4	3	5	214
KEENE	58.6	26.5	42	7	0	1	10	89	81.5	79	15.2	1.92	54.4	13.9	0.42	59.0	2	61.0	2.75	3	3	5	5	208
SBE0050	57.0	27.1	41	7	2	5	16	77	72.6	61	14.1	1.92	51.4	13.7	0.46	60.3	4	62.5	3.75	4	5	6	5	212
MN93413	55.3	28.6	45	6	1	6	18	75	68.3	71	13.6	1.96	56.6	12.4	0.50	55.5	3	59.5	3.75	2	4	6	5	202
MN91309	59.5	30.9	57	3	3	12	28	57	64.6	75	14.6	1.87	53.5	14.0	0.43	60.5	3	62.5	3.75	3	3	6	4	183
MN93434	60.3	31.8	75	3	0	6	26	68	71.3	81	15.4	1.89	57.5	14.4	0.44	60.0	3	63.0	3.75	3	3	3	5	205
MN94123	58.3	28.0	60	3	0	1	11	88	86.4	81	13.8	1.89	58.5	12.5	0.47	54.6	2	57.5	3.00	3	4	6	5	200
MN94055	59.4	32.8	74	2	2	15	30	53	61.2	60	14.4	1.94	55.9	14.0	0.43	55.5	2	57.5	2.50	2	4	6	4	206
MN94200	58.2	27.0	57	4	0	2	9	89	81.1	77	14.1	1.87	52.1	13.0	0.56	58.2	3	59.5	3.50	3	3	5	5	210
SD3249	61.6	27.6	65	3	1	5	18	76	74.2	62	15.3	1.93	55.9	14.5	0.39	61.4	3	61.5	3.00	4	3	3	5	210
RUSS	59.0	30.7	78	2	1	1	15	83	74.8	75	14.6	1.89	54.9	13.8	0.43	60.0	3	62.0	3.25	3	4	3	5	204
EXP 818J	58.6	33.8	84	2	1	13	27	59	66.9	66	14.5	1.81	59.3	13.4	0.43	59.6	3	61.5	2.50	3	5	3	5	208

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC
CRUMB COLOR (CC):	YELLOW	GREY	DULL
CRUMB GRAIN (CG):	IRREG, THICK	OPEN, THICK	BRIGHT WHITE
CRUMB TEXTURE (CT):	HARSH	COARSE	FINE
			SILKY

0	3	3	6
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1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 22

LOCATION: St. Paul, MN
NURSERY: AYT

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS			HARD- NESS	WHEAT PRO (14% mb)	WHEAT ASH (%)	MIX		BAKE ABS (14% mb)	TIME (min)	MIX C Rating	D C C G T VOL (cc)	
					A	B	C				EXT	PRO ASH	ABS	PAT			
CHRIS	57.0	27.9	67	3	1	2	10	87	90.4	74	17.1	1.95	52.3	15.8	0.44	60.5	3
2375	58.4	33.3	71	2	1	4	13	82	87.3	60	15.6	1.91	53.0	13.6	0.41	57.9	3
VERDE	57.3	29.5	72	4	1	3	21	75	78.8	69	14.8	1.99	58.2	12.7	0.43	58.6	3
NORM	59.5	35.0	71	2	3	13	28	56	68.5	68	15.1	1.87	55.1	13.7	0.42	59.3	3
MN93262	58.9	35.6	70	2	3	15	29	53	65.6	58	15.0	1.74	52.3	13.2	0.36	61.4	3
MN93377	60.5	33.7	76	2	0	2	19	79	79.6	87	14.6	1.86	53.6	12.5	0.45	55.8	3
MN94053	59.7	32.5	68	3	3	8	24	65	77.8	45	14.3	1.95	50.9	13.1	0.40	56.5	2
MN94151	59.1	31.2	72	4	1	5	27	67	70.4	58	14.5	1.77	51.6	12.9	0.37	60.0	2
MN95002	60.2	30.9	71	3	3	10	22	65	79.7	52	15.9	1.96	50.0	14.3	0.35	56.9	2
MN95023	56.8	32.2	74	2	2	12	25	61	71.2	61	14.9	1.89	53.9	13.0	0.41	58.6	3
MN95051	59.0	29.3	73	2	0	2	14	84	89.2	66	14.7	1.95	56.5	13.0	0.42	60.5	3
MN95084	61.5	33.6	80	2	1	5	24	70	73.1	72	14.5	1.82	57.1	12.2	0.42	55.0	2
MN95102	59.1	32.5	81	2	0	3	12	85	84.9	75	15.8	1.89	54.4	13.7	0.43	63.1	4
MN95124	61.7	29.1	64	3	34	19	13	34	50.5	17	14.7	2.12	35.8	11.5	0.36	55.8	3
MN95201	57.9	30.7	68	3	4	12	25	59	71.2	51	14.4	1.85	58.7	12.6	0.39	56.5	2
MN95211	59.0	33.3	86	4	1	3	14	82	80.6	78	15.5	1.80	55.3	13.2	0.42	60.3	3
MN95222	60.4	33.6	81	1	1	6	29	64	67.0	68	16.3	1.77	59.3	14.9	0.36	63.1	3
MN95223	59.0	33.0	74	2	5	11	30	54	64.6	55	15.6	1.88	54.2	15.0	0.35	61.4	4
MN95229	60.9	32.7	77	2	1	5	21	73	79.6	71	15.6	1.87	53.7	13.7	0.40	60.8	3
MN95230	58.6	29.4	59	4	12	24	27	37	55.7	48	14.5	1.96	48.1	13.7	0.34	60.3	3

1997 Spring Wheat Quality Report

LOCATION: St. Paul, MN
NURSERY: AYT

USDA / ARS WHEAT QUALITY LAB

FARGO, ND

Table 22 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			HARD- NESS INDEX	WHEAT PRO ASH (14% mb)		FLOUR PRO ASH (14% mb)		MIX ABS	BAKE ABS	MIX PAT	BAKE TIME (min)	D	C	C	LOAF VOL Rating..... (cc)				
					A	B	C		EXT (%)	ASH (%)	EXT (%)	ASH (%)	TIME	C	C	G	T							
MN95231	60.1	29.1	64	3	1	5	18	76	76.5	59	14.4	1.85	49.8	11.9	0.42	54.3	2	62.5	4.00	3	3	6	192	
MN95242	56.2	31.5	70	3	2	12	31	55	65.2	47	14.9	1.86	49.0	13.6	0.41	56.9	2	63.5	2.75	3	1	3	6	219
MN95244	58.7	34.9	81	1	1	4	23	72	72.2	61	15.7	2.10	50.7	13.7	0.62	60.5	3	66.5	2.75	3	3	3	6	218
MN95268	59.4	31.1	61	3	0	3	14	83	77.0	65	15.0	1.81	56.3	13.2	0.42	60.5	4	67.5	5.50	3	3	3	6	198
MN95279	54.4	28.0	48	9	4	10	28	58	65.1	45	15.0	1.83	49.1	13.5	0.39	56.9	3	64.0	4.00	3	3	3	6	209
MN95284	58.2	28.7	60	6	0	7	20	73	78.5	57	14.5	1.82	52.3	13.1	0.41	55.8	2	64.0	4.00	3	3	3	6	210
MN95285	58.6	32.0	67	3	10	23	64	73.6	56	14.4	1.76	52.5	13.4	0.39	57.6	3	65.0	3.75	3	3	3	6	215	
MN95286	58.7	29.6	64	3	0	3	16	81	72.2	75	14.2	1.95	54.2	11.5	0.44	56.5	2	64.5	2.50	2	1	3	6	188
MN95304	58.1	36.9	86	1	3	10	29	58	70.5	60	16.0	1.88	53.7	14.3	0.38	56.9	3	63.0	3.25	3	3	3	6	218
MN95305	57.0	32.1	76	2	1	3	19	77	85.8	62	15.6	1.94	54.0	14.4	0.38	58.2	3	64.5	2.50	3	1	5	6	206

DISTRIBUTION: A= % Soft

B= % Semi-Soft
C= % Semi-Hard
D= % Hard

RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
	CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE
	CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK	FINE
	CRUMB TEXTURE (CT):	HARSH		COARSE	SILKY

0	3	6
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1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 23

LOCATION: *Langdon, ND*
NURSERY: Field Plots

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION A B C D	SKWC'S HARDNESS		NIR (14% mb)	WHEAT PRO ASH (14% mb)	FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)	MIX ABS	BAKE ABS	MIX TIME (min)	D C C G T VOL (cc)									
						HARD- NESS INDEX																		
AMIDON	55.7	43	7	0	1	4	95	96.2	89	13.7	1.72	74.5	13.0	0.53	63.1	4	64.0	2.50	2	1	3	5	800	
BUTTE 86	57.3	32.0	81	2	2	7	23	68	74.4	81	15.1	1.88	72.4	13.8	0.54	62.5	3	64.5	2.25	2	3	3	5	760
GRANDIN	58.6	32.7	87	1	1	9	22	68	74.2	78	14.8	1.84	73.8	13.8	0.50	61.4	3	63.5	2.25	3	3	3	4	790
KEENE	59.5	28.1	66	2	1	2	13	84	87.9	75	14.4	1.77	73.3	13.7	0.49	61.8	3	64.0	2.00	3	3	3	5	780
KULM	59.1	30.3	80	1	4	17	32	47	61.0	74	15.7	1.82	74.0	14.7	0.50	63.1	3	65.0	2.00	2	3	3	5	775
TEAL	54.9	28.6	58	3	2	5	19	74	77.3	66	15.6	1.85	73.9	15.2	0.54	65.7	3	64.8	2.00	2	3	5	4	850
TRENTON	59.9	33.7	87	0	1	4	16	79	82.5	73	14.9	1.81	75.2	13.9	0.49	61.8	4	64.8	2.50	3	3	5	5	790
STOA	54.6	26.8	57	5	1	3	14	82	85.3	66	15.2	1.86	72.8	14.3	0.54	63.1	4	65.0	3.25	2	2	3	5	775
2375	59.9	33.9	79	2	1	10	23	66	70.8	68	14.0	1.73	74.4	13.1	0.51	60.0	3	60.8	2.00	2	3	3	4	720

DISTRIBUTION; A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE	
CRUMB GRAIN (CG):	IRREG, THICK	OPEN, THICK	FINE		
CRUMB TEXTURE (CT):	HARSH	COARSE	SILKY		

0 **3** **6**

1997 Spring Wheat Quality Report

LOCATION: *McKenzie Co.*
NURSERY: Field Plots

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 24

VARIETY	TW (lb/mu)	KWT (gr)	LG (%)	SM (%)	SKWCS A B C D	HARD- NESS INDEX	WHEAT		FLOUR		MIX		BAKE ABS (min)	MIX TIME (min)	D C G T VOL (cc)									
							PRO (14% mb)	ASH (%)	EXT (%)	PRO ASH (14 % mb)	ABS (%)	MIX PAT (14 % mb)												
AMIDON 1	60.3	27.5	65	4	1	0	7	92	80.9	82	13.5	1.34	73.7	12.8	0.44	61.8	3	64.5	2.25	3	5	3	5	870
AMIDON 2	60.2	27.3	59	5	0	2	7	91	79.2	87	12.9	1.42	74.0	12.2	0.46	60.0	3	64.8	2.50	3	5	3	5	860
AMIDON 3	59.5	27.0	59	4	1	2	6	91	79.9	83	13.2	1.40	74.3	12.7	0.44	60.8	4	65.5	2.75	3	5	3	5	865
Penwawa 1	59.9	26.5	53	5	91	8	1	0	12.7	10	12.1	1.57	70.3	11.3	0.51	55.3	2	60.0	2.75	2	3	3	4	740
Penwawa 2	59.0	27.8	52	4	87	10	2	1	13.9	7	12.1	1.52	70.3	11.0	0.50	52.9	2	60.8	3.00	2	3	3	4	710
Penwawa 3	59.3	27.3	57	4	90	7	2	1	13.6	9	12.0	1.51	69.1	10.9	0.47	54.3	2	60.8	3.00	2	3	3	4	710

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

- DOUGH CHAR (DC):
- CRUMB COLOR (CC):
- CRUMB GRAIN (CG):
- CRUMB TEXTURE (CT):

0	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
3	YELLOW	GREY	DULL	BRIGHT WHITE
6	IRREG, THICK	OPEN, THICK	FINE	FINE
	HARSH	COARSE	SILKY	SILKY

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USDA / ARS WHEAT QUALITY LAB

Table 25

LOCATION: NURSERY:	Minot, ND										Fargo, ND													
	Field Plots			SKWC'S HARDNESS DISTRIBUTION			WHEAT (14% mb)			NIR HARD- NESS INDEX			FLOUR EXT (14 % mb)			MIX PRO ASH (14 % mb)			BAKE ABS			MIX TIME (min)		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A	B	C	D	INDEX	PRO	ASH	ABS	PAT	PRO	ASH	ABS	PAT	BAKE	TIME	C	C	G	T	VOL (cc)
AMIDON	59.5	29.7	73	4	0	2	14	84	73.1	89	14.3	1.51	76.2	13.5	0.50	62.5	3	63.0	2.00	3	5	5	4	800
BUTTE	86	28.8	62	4	2	4	17	77	71.6	75	15.7	1.84	70.8	14.7	0.51	63.7	4	65.5	2.00	3	3	3	4	850
ERNEST	59.8	31.4	73	3	5	12	35	48	58.5	59	14.2	1.73	74.2	12.9	0.50	63.1	4	63.0	2.00	3	5	3	4	800
GRANDIN	59.8	30.9	68	2	1	6	23	70	68.7	73	14.8	1.77	75.7	14.1	0.54	62.7	4	66.8	2.75	3	5	5	5	960
GLUPRO	57.2	31.6	61	3	2	8	28	62	68.2	88	18.7	1.79	75.9	17.7	0.50	68.9	5	68.0	2.75	4	5	5	6	1035
KEENE	60.9	26.4	52	5	1	2	12	85	74.3	76	14.3	1.54	74.6	14.0	0.45	65.4	3	64.8	2.25	3	6	3	5	950
KULM	59.8	30.4	71	3	5	13	31	51	59.3	62	15.6	1.78	73.6	15.0	0.49	68.0	4	67.0	2.00	3	5	5	5	990
STOA	57.6	26.9	52	6	1	3	13	83	72.4	69	14.5	1.69	73.2	14.0	0.48	62.5	5	65.5	2.50	4	5	3	5	915
TEAL	60.2	27.1	52	4	6	11	30	53	59.7	65	15.0	1.65	75.3	14.8	0.46	66.5	4	64.5	2.25	4	5	6	5	1010
TRENTON	60.2	28.3	74	2	1	1	15	83	73.4	77	15.2	1.62	73.6	14.4	0.48	66.1	5	66.0	2.75	4	5	3	5	950
2375	58.2	29.5	50	5	1	8	25	66	64.8	66	14.8	1.71	75.1	13.9	0.50	66.8	4	65.5	2.50	4	5	3	5	900

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

0

RATINGS:	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC	BUCKY
	CRUMB COLOR (CC):	YELLOW	GREY	DULL	BRIGHT WHITE
	CRUMB GRAIN (CG):	IRREG, THICK		OPEN, THICK	FINE
	CRUMB TEXTURE (CT):	HARSH		COARSE	SILKY

BUCKY

CREAMY

OPEN, THICK

BRIGHT WHITE

FINE

SILKY

BUCKY

FINE

SILKY

BRIGHT WHITE

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USDA / ARS
WHEAT QUALITY LAB

Table 26

FARGO, ND																																					
LOCATION: NURSERY:		Williston, ND Field Plots																																			
VARIETY	(lb/bu)	TW			KWT			LG			SM			SKWCS HARDNESS DISTRIBUTION			WHEAT HARD- NESS			FLOUR			FLOUR			MIX TIME			BAKE TIME			MIX TIME			LOAF VOL (cc)		
		A	B	C	D	INDEX	NESS	(14% mb)	(14% mb)	(14% mb)	PRO	ASH	EXT	PRO	ASH	EXT	ABS	FAT	ABS	FAT	ABS	FAT	ABS	FAT	ABS	FAT	COARSE	FINE	SILKY								
104	58.7	25.9	35	7	3	4	10	83	73.8	89	15.1	1.80	72.3	14.2	0.52	60.8	4	62.8	2.50	4	5	5	5	910													
205	58.0	25.2	22	14	2	5	5	88	76.1	87	14.5	1.82	71.7	14.1	0.54	62.5	4	64.5	2.75	4	5	5	5	875													
303	58.9	26.0	40	7	1	2	8	89	77.1	88	14.2	1.74	73.9	13.7	0.52	61.4	4	63.5	2.25	4	5	3	5	815													
105	56.4	29.2	57	5	77	13	8	2	19.3	19	14.8	1.96	68.5	13.7	0.61	60.0	3	62.0	2.25	3	3	5	4	775													
203	59.0	31.4	61	5	86	9	4	1	12.8	19	13.6	1.94	70.0	12.7	0.58	57.6	3	61.5	2.50	3	3	2	4	750													
302	59.3	30.6	66	4	85	11	3	1	13.6	10	13.8	1.93	68.9	12.5	0.57	59.3	3	61.0	2.25	2	3	5	4	715													
AMIDON 1	58.4	27.6	58	3	2	5	16	77	71.8	90	16.9	1.77	71.7	16.1	0.52	67.1	3	66.5	2.00	3	5	3	5	880													
AMIDON 2	59.2	27.1	60	3	1	3	16	80	73.5	94	16.6	1.70	73.2	16.0	0.52	68.0	3	66.0	2.00	3	5	5	5	900													
AMIDON 3	58.5	27.7	58	4	2	4	15	79	72.9	92	16.6	1.79	71.8	16.0	0.52	67.1	3	65.0	1.75	3	5	6	5	890													
Penwawa 1	60.3	33.0	81	1	90	6	2	2	5.7	14	15.1	1.97	71.2	14.4	0.62	61.4	3	63.5	2.25	3	5	5	5	810													
Penwawa 2	59.5	32.7	81	1	92	6	1	1	7.5	13	15.0	1.88	69.3	13.8	0.58	59.6	4	61.5	2.25	3	5	3	4	790													
Penwawa 3	61.0	32.9	83	0	94	5	1	0	9.1	20	15.1	1.83	71.8	13.9	0.61	60.3	3	62.5	2.25	3	5	3	4	780													
DISTRIBUTION: A= % Soft												0			3			3			6			6													
RATINGS:												DOUGH CHAR (DC):			STICKY-WEAK			PLIABLE			ELASTIC			BUCKY													
B= % Semi-Soft												CRUMB COLOR (CC):			YELLOW			CREAMY			BRIGHT WHITE			FINE													
C= % Semi-Hard												CRUMB GRAIN (CG):			IRREG, THICK			OPEN, THICK			HARSH			SILKY													
D= % Hard												CRUMB TEXTURE (CT):			HARSH			COARSE			FINE			SILKY													

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USDA / ARS WHEAT QUALITY LAB

Table 27

LOCATION: Minneapolis, MN
NURSERY: SPECIAL

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	SM (%)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION			HARD- NESS INDEX	WHEAT PRO (14% mb)	FLOUR			PRO ASH (14% mb)	ABS PAT	BAKE TIME (min)	MIX TIME (min)	D C C G T VOL (cc)
						A	B	C			EXT	MIX	BAKE					
CHRIS	56.2	27.2	61	5	0	2	7	91	94.9	75	16.5	2.03	54.3	15.0	0.48	56.9	3	62.8 2.25 3 3 3 6 238
VERDE	57.0	29.6	72	3	1	2	15	82	89.3	60	14.5	1.86	59.8	12.6	0.55	55.5	2	60.5 3.00 3 3 5 5 208
2375	57.4	31.4	64	2	1	5	12	82	92.6	55	15.2	2.01	52.4	13.0	0.47	55.0	3	63.0 3.00 3 3 5 6 195
2	58.6	33.1	79	1	2	2	4	92	96.5	86	16.6	1.92	50.9	14.3	0.58	57.6	3	66.0 3.00 3 3 3 6 212
3	55.8	30.2	56	5	1	8	17	74	80.3	52	15.1	2.07	48.1	13.9	0.44	55.8	3	64.0 3.75 3 3 4 4 210
5	56.2	31.3	52	5	1	4	17	78	85.7	62	15.6	2.23	49.4	14.0	0.71	55.8	3	66.5 3.25 3 2 3 6 210
6	54.9	33.9	66	2	2	7	13	78	89.1	54	14.6	2.37	51.5	13.1	0.78	55.3	2	61.0 3.00 3 2 3 4 182
7	53.0	32.9	57	2	5	7	11	77	86.5	44	14.8	2.72	48.5	13.5	0.90	53.8	2	60.8 2.00 3 2 3 5 180
8	59.7	33.1	80	2	4	11	23	62	76.1	48	15.0	1.87	52.2	13.6	0.38	56.5	3	58.5 2.25 3 3 3 6 190
10	59.0	34.6	77	1	1	3	14	82	92.7	67	15.3	1.95	57.7	13.3	0.46	56.5	3	64.5 3.00 3 4 3 6 192
11	56.2	37.0	83	1	2	14	17	67	79.6	56	14.7	2.03	51.2	12.7	0.52	54.3	1	61.0 2.75 3 3 3 6 198
14	56.9	29.9	58	3	1	1	8	90	93.2	70	16.1	2.05	51.5	14.7	0.49	57.9	2	62.5 2.25 3 4 3 5 204
15	59.1	35.5	91	0	0	3	13	84	87.5	60	15.5	1.82	54.0	13.5	0.42	57.6	2	64.8 2.50 3 3 3 5 198

DISTRIBUTION: A= % Soft

B= % Semi-Soft

RATINGS:

DOUGH CHAR (DC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

C= % Semi-Hard

D= % Hard

BUCKY

ELASTIC

CREAMY

BRIGHT WHITE

OPEN, THICK

FINE

COARSE

SILKY

0

3

6

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB
FARGO, ND

Table 28

LOCATION: St. Paul, MN
NURSERY: Special

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			HARD- NESS INDEX	WHEAT PRO (14% mb)		FLOUR EXT (%)		FLOUR PRO (14% mb)		MIX ABS		BAKE TIME (min)		MIX TIME (min)		D C C G T VOL (cc)	LOAF Rating		
					A	B	C		ASH	ASH	PAT	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH	ASH
RL 1	53.6	28.2	55	2	8	19	21	52	63.1	40	14.5	1.80	49.5	12.6	0.44	53.2	2	61.0	3.50	2	3	5	4	171
RL 2	53.2	28.4	68	1	29	18	16	37	56.5	31	15.8	1.84	36.1	13.5	0.50	53.2	1	57.0	2.00	1	1	5	1	110
RL 3	58.2	31.3	80	1	1	4	23	72	66.1	59	14.3	1.83	54.3	11.8	0.46	54.3	1	58.5	1.50	1	1	3	3	162
RL 4	56.2	34.5	90	1	74	19	5	2	24.1	13	15.4	1.89	36.8	13.1	0.36	55.8	2	62.0	2.75	3	3	3	5	202
RL 5	55.5	33.6	88	0	73	18	6	3	25.1	13	15.4	2.04	39.5	13.3	0.37	57.6	3	63.0	3.00	3	3	6	5	202
RL 6	54.0	24.6	37	5	5	6	10	79	85.7	36	15.3	1.71	52.9	13.1	0.43	54.3	1	63.0	2.25	1	1	3	2	148
RL 7	55.6	34.1	87	0	82	12	4	2	20.5	14	15.4	1.75	33.8	13.3	0.38	55.8	2	61.0	2.25	3	5	5	4	188
RL 8	57.8	29.7	75	1	1	3	12	84	74.7	68	16.7	1.91	51.7	14.3	0.47	60.8	3	66.0	2.25	3	6	3	5	210
RL 9	57.0	33.9	78	1	2	10	32	56	60.7	70	14.7	1.78	56.5	12.3	0.37	55.5	2	61.5	2.50	2	4	3	5	182
RL 10	55.8	32.2	76	1	3	7	28	62	64.0	61	16.9	1.99	52.9	14.5	0.47	58.2	1	60.8	1.50	1	1	5	3	148
RL 11	52.1	27.3	58	1	7	16	21	56	67.4	37	15.4	1.89	47.4	13.6	0.43	60.0	2	64.5	2.25	1	1	3	1	130
RL 12	51.3	28.9	69	1	50	19	15	16	37.8	28	15.2	1.87	38.3	12.4	0.42	50.5	1	60.0	1.50	0	1	3	1	118
RL 13	54.9	32.8	83	1	78	16	4	2	21.6	15	16.5	2.17	31.4	13.0	0.50	56.9	2	58.8	1.75	2	2	3	4	162
RL 14	52.4	27.1	51	1	9	14	32	45	56.6	37	14.9	2.12	44.7	13.1	0.59	56.5	2	62.5	1.50	1	2	3	3	150
RL 15	55.8	35.5	91	0	75	19	3	3	23.9	19	15.6	1.97	41.3	13.6	0.40	60.3	3	62.5	1.75	3	6	3	4	200
RL 16	53.8	32.1	88	0	72	11	6	11	26.3	11	15.8	2.04	41.0	13.5	0.38	55.8	2	62.5	2.25	2	3	5	4	192
RL 17	56.5	30.6	70	1	82	11	3	4	18.6	14	14.5	1.92	37.3	12.2	0.32	50.2	1	58.5	2.00	1	4	3	3	168
RL 18	55.8	26.7	56	4	38	24	16	22	43.3	18	15.2	1.86	41.3	12.3	0.33	53.2	2	58.5	2.00	2	4	5	4	158
RL 19	57.8	26.4	46	6	46	24	18	12	36.9	21	14.4	1.74	39.6	11.9	0.36	50.8	1	56.0	2.00	1	1	3	2	168
RL 20	54.7	28.2	49	2	8	18	21	53	63.1	36	15.0	1.95	47.6	12.9	0.43	55.5	2	60.8	2.00	2	2	3	5	188

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN
NURSERY: Special

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			HARD- NESS (14% mb)	WHEAT PRO ASH (14% mb)	NIR INDEX	FLOUR EXT (%)	FLOUR PRO ASH (14 % mb)	MIX ABS PAT	BAKE ABS	MIX TIME (min)	D C C T VOL Rating	C C G T LOAF (cc)							
					A	B	C																	
RL 21	54.0	35.5	88	1	77	9	5	9	19.7	11	15.4	1.92	39.2	13.0	0.40	55.8	2	62.5	2.00	3	3	4	190	
RL 22	53.4	25.8	49	3	10	14	21	55	67.3	36	15.2	1.81	46.6	12.9	0.44	54.3	1	60.5	2.00	1	2	5	2	160
RL 23	54.3	35.8	92	0	77	13	7	3	23.0	15	15.7	1.92	37.0	13.6	0.37	55.5	2	62.8	2.00	2	5	5	4	184
RL 24	54.0	28.6	67	2	62	17	9	12	30.7	15	15.1	1.83	38.2	12.0	0.34	53.5	1	60.5	1.75	1	1	3	2	150
RL 25	56.2	29.9	84	2	2	5	17	76	68.9	53	15.1	1.99	49.0	12.4	0.47	52.6	1	60.5	1.50	1	1	3	2	154
RL 26	57.9	30.8	80	1	2	4	16	78	69.0	54	14.7	1.93	54.1	11.8	0.52	55.8	1	61.5	1.50	1	4	3	4	169
RL 27	54.2	24.7	84	4	5	10	17	68	79.3	33	14.8	1.84	47.8	13.0	0.38	53.8	1	61.0	1.75	1	6	3	2	162
RL 28	55.0	34.7	87	1	74	17	6	3	23.6	11	16.0	2.04	36.7	13.5	0.36	58.2	2	65.0	2.00	3	2	5	5	210
RL 29	57.4	34.1	82	1	18	16	31	35	50.3	48	15.1	1.85	45.2	12.8	0.40	54.6	2	60.5	1.75	3	4	5	5	187
RL 30	57.8	32.2	79	2	5	12	31	52	59.4	44	15.0	1.76	49.3	12.8	0.35	53.8	2	60.5	2.25	2	5	5	5	194
RL 31	60.3	37.3	89	1	63	25	9	3	29.5	23	16.0	1.94	37.0	13.3	0.43	55.0	2	61.5	3.00	3	6	4	5	210
RL 32	58.1	36.6	90	1	81	14	4	1	22.3	7	14.9	2.04	31.9	11.7	0.33	53.8	2	60.0	2.00	2	6	3	4	182
RL 33	51.4	26.7	91	2	11	18	31	40	55.3	43	15.5	1.74	40.0	13.3	0.45	55.8	1	58.8	1.75	0	1	3	1	130
RL 34	56.1	35.9	89	1	66	22	6	6	27.7	20	15.8	1.91	38.3	13.7	0.38	60.0	3	62.5	1.75	3	6	3	4	195
RL 35	54.7	25.3	54	4	2	8	16	74	86.1	42	15.5	1.86	47.1	13.4	0.39	56.2	1	61.0	1.75	1	1	5	4	148
RL 36	54.6	27.1	51	3	4	11	26	59	64.7	54	15.7	1.75	45.5	13.1	0.40	59.0	2	65.0	1.75	2	1	3	5	170
RL 37	56.1	36.1	91	0	72	19	6	3	23.4	14	15.4	1.86	30.0	12.4	0.35	53.5	2	60.8	3.00	3	3	3	4	181
RL 38	56.6	35.2	89	0	68	21	7	4	26.4	19	15.3	1.86	32.7	12.6	0.35	56.5	2	62.5	2.50	3	3	4	4	194
RL 39	56.1	36.1	90	1	70	23	5	2	25.1	18	15.4	1.79	36.9	13.1	0.39	55.3	2	63.0	2.75	3	3	3	5	191
RL 40	55.4	27.5	63	2	4	15	26	55	60.4	50	15.4	1.80	41.2	13.0	0.41	55.5	2	62.5	2.25	3	3	3	5	185

1997 Spring Wheat Quality Report

LOCATION: St. Paul, MN
NURSERY: Special

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 28 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS A B C D	HARD- NESS INDEX	WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		LOAF	
							PRO	ASH	EXT	PRO	ASH	ABS	PAT	TIME	C	C	G	T	VOL	(min)	Rating			
							(14% mb)		(%)		(14% mb)		(%)		(min)		Rating		Rating		Rating		Rating	
RL 41	56.2	26.8	49	4	17	10	13	60	70.9	32	14.6	1.77	42.2	12.7	0.41	51.6	1	58.5	2.00	1	1	5	2	158
RL 42	56.6	34.3	89	1	78	16	3	3	22.5	16	15.3	1.92	38.1	13.0	0.40	56.5	2	62.0	2.25	3	3	3	5	193
RL 43	58.0	33.7	78	2	40	27	22	11	37.9	19	14.5	2.24	30.0	11.1	0.39	51.9	2	58.5	2.00	3	5	5	4	168
RL 44	54.9	26.5	53	4	67	21	9	3	26.3	10	14.9	1.89	31.3	10.9	0.36	50.2	1	57.5	2.00	1	4	5	2	142
RL 45	52.1	30.0	68	2	8	22	31	39	54.5	51	15.8	1.83	40.2	13.2	0.40	56.9	1	61.5	1.75	1	1	3	1	140
RL 46	58.2	30.8	81	1	0	1	12	87	75.8	76	17.2	1.93	44.5	14.9	0.45	60.3	3	64.8	2.00	3	6	3	6	210
RL 47	55.4	35.2	91	0	75	16	6	3	21.5	17	15.7	1.87	32.9	13.3	0.35	56.5	2	62.8	2.25	3	3	3	5	188
RL 48	59.1	31.5	70	2	65	19	11	5	26.8	15	13.8	1.77	39.0	10.9	0.39	49.9	1	54.5	2.00	1	4	5	1	148
RL 49	59.0	29.5	68	2	59	22	14	5	31.0	17	14.6	1.93	39.7	12.1	0.39	53.5	1	58.5	2.00	1	4	3	1	158
RL 50	57.8	36.0	84	1	71	19	8	2	25.6	22	14.3	1.76	31.4	11.8	0.36	49.2	1	55.0	1.50	1	1	5	1	128
RL 51	57.9	34.6	86	1	0	5	24	71	66.0	52	14.6	1.89	47.6	11.9	0.44	53.2	1	56.8	1.50	2	4	6	4	162
RL 52	52.2	24.8	35	12	6	9	20	65	64.6	54	16.1	1.76	36.2	13.3	0.45	53.2	1	61.0	1.75	1	1	3	2	132
RL 53	54.4	30.4	75	1	3	13	35	49	59.3	48	15.0	1.66	44.4	12.3	0.47	53.2	1	58.5	1.50	1	1	3	1	121
RL 54	54.6	29.0	64	2	16	27	31	26	48.2	37	15.1	1.94	41.1	13.0	0.45	54.3	2	58.5	2.00	2	2	6	5	170
RL 55	57.3	32.8	77	0	2	8	32	58	63.5	63	16.0	1.94	53.3	13.8	0.56	56.9	1	60.8	1.25	1	4	5	5	162
RL 56	54.7	29.7	67	2	4	5	11	80	89.0	47	14.8	1.90	50.5	12.9	0.54	56.9	1	60.8	1.50	1	1	5	2	151
RL 57	57.0	31.3	76	1	2	4	18	76	69.4	71	16.0	1.92	45.5	13.6	0.47	55.8	1	60.0	1.50	1	4	5	4	152
RL 58	56.6	36.4	87	0	79	15	5	1	22.3	17	15.0	1.90	27.8	12.3	0.44	53.2	2							
RL 59	56.3	33.3	89	0	77	16	5	2	22.2	14	15.0	1.93	29.3	12.8	0.37	54.3	2							
RL 60	59.0	30.7	64	3	59	26	11	4	30.2	19	14.5	1.89	37.1	11.7	0.36	49.9	1	56.5	2.25	1	4	5	1	158

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN
NURSERY: Special

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S HARDNESS DISTRIBUTION			NIR (14% mb)	WHEAT PRO ASH		MIX PRO ASH		BAKE ABS		MIX TIME (min)	D C C C C LOAF VOL Rating								
					A	B	C		EXT (%)	AHS	PAT	ABS	C C C C T											
RL 61	54.0	26.8	41	3	10	22	37	31	51.5	42	14.9	1.81	43.3	13.2	0.40	53.8	1	60.0	2.25	1	3	3	4	175
RL 62	58.4	25.7	41	4	37	25	21	17	42.5	16	14.3	1.90	40.6	11.9	0.39	50.8	1	57.5	2.25	1	2	1	1	160
RL 63	53.9	21.9	15	8	2	3	5	90	105.8	39	15.1	1.77	45.5	13.1	0.46	53.5	1	59.0	1.75	1	1	1	1	128
RL 64	54.6	39.3	93	1	86	10	3	1	17.5	11	15.7	1.90	34.9	13.1	0.37	53.2	2	59.5	2.00	3	5	3	5	180
RL 65	59.0	27.3	51	4	42	28	19	11	37.3	14	14.9	1.75	36.4	12.1	0.35	49.9	1	57.0	2.00	1	4	3	4	158
RL 66	57.9	32.5	80	0	75	17	7	1	20.9	11	14.8	1.77	36.2	12.2	0.34	49.2	1	56.5	2.00	1	4	3	4	160
RL 67	59.8	33.6	81	0	78	16	5	1	20.0	22	16.1	1.76	36.0	13.3	0.32	52.2	2	58.5	2.50	3	5	6	5	190
RL 68	59.0	30.7	64	2	73	16	10	1	22.8	2	14.2	1.84	39.2	11.3	0.35	48.9	1	56.8	2.50	1	4	3	2	170
RL 69	54.8	35.2	89	0	83	10	4	3	19.8	6	15.1	1.98	41.1	12.9	0.38	59.0	3	59.0	2.00	2	6	3	5	180
RL 70	57.4	33.1	86	0	59	18	8	15	34.5	15	16.5	1.84	41.0	14.7	0.46	61.8	4	62.5	2.00	3	3	3	6	197
RL 71	57.6	34.9	85	0	3	18	38	41	56.7	51	14.8	1.50	51.9	12.7	0.40	56.5	2	60.5	2.00	2	3	5	5	182
RL 72	57.8	31.1	76	1	2	5	23	70	66.1	51	14.5	1.95	48.3	12.2	0.46	54.6	1	54.8	1.75	1	1	5	2	148
RL 73	59.4	35.4	87	0	62	29	7	2	28.9	17	13.7	1.89	37.0	11.5	0.34	54.3	2	58.5	1.75	2	1	5	4	158
RL 74	53.0	27.9	61	2	17	21	34	28	49.7	40	15.2	1.60	38.4	13.0	0.47	57.9	2	62.5	2.25	0	1	1	1	124
RL 75	56.4	26.8	31	5	5	15	22	58	68.0	33	15.1	1.96	48.3	13.5	0.42	58.2	2	62.5	2.25	2	4	5	5	170
RL 76	55.1	29.9	53	1	35	16	10	39	53.8	18	14.8	1.69	39.0	12.2	0.37	54.3	2	58.5	2.00	1	1	5	1	138
RL 77	55.7	33.7	89	0	86	10	3	1	15.9	7	15.0	1.99	38.7	13.0	0.37	57.9	3	60.0	2.00	3	3	5	5	190
RL 78	54.0	28.1	61	2	16	23	29	32	49.7	33	14.7	1.84	43.1	12.3	0.50	57.9	2	60.5	2.00	1	4	5	4	148
RL 79	52.3	25.5	42	4	12	18	27	43	53.9	37	15.1	1.93	38.3	12.9	0.46	55.8	1	60.8	2.50	1	1	3	2	148
RL 80	56.0	34.5	90	0	68	23	7	2	26.4	10	16.1	1.98	30.6	12.8	0.31	57.9	3							

1997 Spring Wheat Quality Report

LOCATION: St. Paul, MN
NURSERY: Special

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 28 (cont)

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION A B C D	HARD- NESS INDEX	WHEAT		FLOUR		MIX		BAKE		MIX		TIME		C		LOAF Rating			
									PRO (14% mb)	ASH (%)	EXT (%)	PRO (14% mb)	ASH (%)	ABS	PAT	TIME (min)	C C G T	C C G T	D	C C G T	C			
RL 81	54.8	29.5	72	2	5	17	29	49	60.9	48	15.6	2.08	45.9	13.8	0.79	60.3	2	62.8	1.75	1	2	3	5	170
RL 82	52.8	26.0	47	3	9	16	19	56	64.8	34	14.6	2.29	43.8	13.1	0.49	55.8	2	61.5	2.50	1	1	1	1	150
RL 83	57.8	32.3	80	1	68	22	8	2	26.4	14	14.5	1.80	30.5	11.9	0.38	51.6	1	56.5	2.00	1	4	3	1	150
RL 84	58.2	34.9	82	0	71	21	7	1	25.4	14	13.9	1.82	22.4	9.9	0.49									
RL 85	55.4	35.3	91	0	82	12	4	2	19.6	7	15.5	1.93	26.6	12.8	0.40	55.5	3							
RL 86	55.6	35.1	88	0	73	18	7	2	23.2	12	15.7	2.08	31.3	13.1	0.41	55.5	2	60.8	2.25	3	3	5	5	178
RL 87	58.4	34.6	80	1	5	26	68		64.4	47	14.8	1.82	53.2	12.7	0.48	55.0	2	61.5	2.25	2	3	6	6	172
RL 88	59.0	29.7	58	4	61	26	9	4	28.2	14	14.3	1.93	38.5	11.2	0.39	50.8	1	57.0	2.00	1	4	3	2	150
RL 89	55.1	37.1	89	0	85	10	2	3	17.5	6	15.1	1.79	33.0	12.9	0.34	55.3	3	60.5	2.25	2	5	5	5	170
RL 90	54.6	35.4	89	1	87	9	2	2	16.4	6	15.4	1.97	31.0	12.7	0.36	53.2	2	58.5	2.25	2	5	6	6	182
RL 91	57.2	31.5	77	1	41	16	13	30	42.8	31	15.5	1.92	39.9	12.5	0.36	53.5	2	59.5	2.25	2	3	3	5	178
RL 92	55.4	36.0	89	0	75	15	7	3	23.2	17	15.7	2.07	32.4	13.2	0.48	55.8	2	61.0	2.50	2	3	3	6	188
RL 93	56.9	32.6	84	0	74	18	5	3	23.5	7	14.9	1.95	37.6	13.2	0.38	56.5	3	60.5	2.25	3	3	3	5	190
RL 94	56.6	26.6	52	3	3	7	18	72	75.3	54	15.5	1.73	48.1	13.2	0.48	57.9	3	62.5	2.00	2	5	3	5	180
RL 95	58.9	31.2	72	3	46	32	15	7	35.3	14	14.2	1.99	27.8	11.4	0.40	51.6	2							
RL 96	57.4	32.7	84	0	21	12	22	45	53.3	40	15.1	1.92	39.8	12.4	0.36	55.0	2	59.0	2.00	2	3	6	5	182
RL 97	54.2	28.8	56	3	17	21	30	32	50.2	36	14.4	1.83	37.8	12.8	0.39	53.8	2	58.8	2.25	1	3	3	4	170
RL 98	52.2	24.6	27	16	11	11	20	58	60.3	43	16.7	1.96	34.9	13.8	0.49	55.0	2	56.8	2.25	2	1	1	1	118
RL 99	58.8	31.2	70	2	76	14	8	2	21.3	8	13.6	1.91	32.9	11.0	0.39	51.3	1	56.5	2.00	2	4	3	1	152
RL 100	57.8	29.4	68	1	1	4	16	79	70.4	59	15.7	1.94	49.5	13.2	0.47	54.6	1	56.0	1.50	1	1	5	1	134

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USDA / ARS WHEAT QUALITY LAB

Table 28 (cont)

LOCATION: St. Paul, MN
NURSERY: Special

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A (%)	B (%)	C (%)	D (%)	SKWCS HARDNESS		HARD- NESS	INDEX	NIR WHEAT		PRO ASH (14% mb)	EXT (%)	FLOUR		PRO ASH	ASH	MIX		BAKE ABS	MIX PAT	MIX ABS	BAKE TIME	D C C C C T VOL (cc)
									A	B			PRO ASH	ASH			EXT	FLOUR	PRO ASH	ASH	MIX	TIME	C	G	T	Rating	
RL 101	55.9	34.7	91	0	86	9	3	2	17.6	23	14.7	1.89	29.2	12.4	0.33	54.3	2										
RL 102	57.9	34.0	82	1	77	17	5	1	22.3	18	14.8	1.86	23.7	12.0	0.34	52.9	2										
RL 105	58.1	36.2	85	0	81	14	4	1	18.8	20	14.1	1.92	24.3	10.7	0.31	48.2	1										
RL 106	56.4	35.3	92	0	72	18	5	5	25.3	27	15.2	1.97	35.2	12.9	0.36	55.8	2	60.0	2.50	3	5	3	5	3	5	181	
RL 107	54.3	34.7	85	0	69	21	8	2	25.9	11	16.0	1.99	37.3	13.7	0.45	56.9	2	62.8	2.50	2	4	6	4	4	4	188	
RL 108	58.4	35.1	79	1	1	6	25	68	65.7	68	15.6	1.89	55.3	13.3	0.49	56.9	1	59.5	1.50	1	4	5	5	5	5	160	
RL 109	55.5	30.8	63	4	3	15	33	49	62.4	53	14.5	1.82	50.2	12.5	0.44	57.9	2	61.5	2.25	2	4	3	6	6	6	168	
RL 110	58.4	32.9	76	2	0	2	17	81	70.4	76	15.1	1.86	51.0	12.6	0.48	53.8	1	58.5	1.50	1	1	3	5	5	5	160	
Wuhan	56.5	33.3	80	1	46	14	12	28	39.2	24	14.1	1.92	36.5	11.7	0.43	55.0	2	61.0	2.50	2	4	6	5	5	5	168	
Norm	59.3	36.1	92	0	1	3	18	78	67.6	72	15.2	1.93	46.7	13.1	0.46	59.6	4	63.0	2.00	3	5	3	6	6	6	205	
Robin	57.1	35.0	87	2	12	31	32	25	50.9	54	16.7	1.96	53.6	15.5	0.39	62.1	4	64.5	2.25	3	2	3	6	6	6	220	

DISTRIBUTION: A= % Soft

B= % Semi-Soft

C= % Semi-Hard

D= % Hard

RATINGS:

DOUGH CHAR (PC):

CRUMB COLOR (CC):

CRUMB GRAIN (CG):

CRUMB TEXTURE (CT):

STICKY-WEAK

YELLOW

IRREG, THICK

ELASTIC

GREY

HARSH

DULL

OPEN, THICK

COARSE

CREAMY

SILKY

BUCKY

BRIGHT WHITE

FINE

SILKY

0

STICKY-WEAK	PLIABLE	ELASTIC		
YELLOW	GREY	DULL		
IRREG, THICK	HARSH	OPEN, THICK		
		COARSE		

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1997 Spring Wheat Quality Report

LOCATION: *Crookston, MN*
 NURSERY: *Specials*

USDA / ARS WHEAT QUALITY LAB FARGO, ND

Table 29

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			HARD- NESS (14% mb)	WHEAT PRO ASH (14% mb)		FLOUR EXT (14 % mb)			PRO ASH (14 % mb)	ABS	TIME (min)	BAKE ABS	MIX TIME	MIX C	D	C	C	LOAF VOL (cc)	
					A	B	C		PRO	ASH	EXT	PRO	ASH											
BH-M1	56.9	33.0	68	4	5	9	20	66	76.0	58	13.1	1.82	49.3	11.5	0.50	51.6	1	56.8	2.00	1	1	3	4	165
BH-M2	51.6	31.9	80	1	63	15	8	14	30.3	6	14.0	2.36	32.7	12.5	0.48	50.8	1	56.0	2.75	2	4	3	4	170
BH-M3	51.8	31.9	82	1	71	14	6	9	25.3	17	14.1	1.93	31.9	12.5	0.46	50.8	1	54.5	2.50	1	3	3	2	175
BH-M4	52.4	31.4	83	1	56	18	8	18	34.7	7	14.2	2.05	35.0	12.8	0.46	51.6	1	56.5	2.25	1	4	3	4	178
BH-M5	52.5	33.2	89	1	65	15	8	12	27.8	10	13.9	2.04	35.6	12.6	0.44	51.3	1	55.0	2.25	1	4	3	4	171
IAC18-M	57.6	28.5	54	2	33	23	15	29	48.7	10	14.7	1.90	32.2	13.0	0.43	52.6	2	58.8	2.50	2	4	3	4	188
IAC17-M	58.7	31.4	59	3	34	19	14	33	50.2	15	13.3	1.74	34.5	11.3	0.38	55.8	2	56.0	1.50	1	1	3	2	160
IAC24-M	54.1	28.1	61	3	7	4	10	79	81.1	44	14.9	1.88	44.7	13.9	0.48	59.6	3	61.5	2.25	3	4	3	4	200
ANA-M1	54.2	25.8	17	18	4	8	15	73	82.2	48	12.8	1.72	54.2	10.9	0.45	50.8	1	54.8	2.50	1	1	3	2	182
ANA-M2	54.2	22.9	7	30	3	7	8	82	91.4	51	12.9	1.73	52.3	11.1	0.43	50.8	1	56.8	2.25	1	4	3	2	182
ANA-M3	53.4	24.3	11	27	8	5	10	77	89.0	39	12.9	1.84	47.7	11.0	0.44	51.9	1	53.5	2.00	1	4	3	2	175
BH1146	57.8	31.5	73	2	30	24	11	35	52.1	18	14.9	1.79	42.6	13.0	0.39	55.8	2	59.0	1.75	2	4	5	5	192
IAC24	54.2	29.0	64	4	4	7	15	74	79.1	52	15.4	1.89	37.5	14.1	0.44	59.0	2	55.0	1.50	1	1	1	1	150
IAC18	58.2	32.8	69	2	31	18	15	36	53.5	25	14.6	1.81	35.6	12.9	0.37	51.3	1	54.0	1.50	1	1	3	1	142
IAC17	58.8	32.2	68	3	30	20	13	37	54.7	18	14.5	1.76	37.6	12.6	0.36	50.8	1	58.5	3.75	2	5	5	5	200
ANAHUAC	55.3	28.6	31	12	4	11	16	69	77.3	44	13.6	1.76	57.1	12.0	0.44	51.3	2	56.8	2.00	1	1	3	1	160
BAJIO-PLU	47.8	30.1	53	7	91	5	2	2	-4.2	14	13.0	1.84	35.6	11.3	0.49	50.8	1	54.8	2.50	1	3	6	5	191
TOPABOR	53.8	31.1	67	3	3	18	76	77.1	42	13.7	1.87	49.3	11.7	0.48	50.2	1	57.0	3.25	1	1	5	1	155	
CENTAUR	47.8	28.9	49	7	94	3	1	2	-5.6	6	13.2	1.79	35.5	11.0	0.50	49.8	1	54.8	2.50	1	1	3	1	182
SALAMAN	49.4	26.6	42	9	69	9	3	19	22.8	10	13.4	2.04	38.6	11.9	0.50	50.8	1	57.0	3.25	1	1	5	1	182

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WHEAT QUALITY LAB

Table 29 (cont)

LOCATION: Crookston, MN										FARGO, ND																
NURSERY:		Specials		SKWCS		HARDNESS		NIR		WHEAT		FLOUR		MIX		BAKE		MIX		D		C		C		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION		HARD- NESS	PRO- CESS	PRO ASH		EXT (14% mb)		PRO ASH		ABS		PAT		TIME (min)		C		G		T	
					A	B			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	Rating	Rating	Rating	Rating	Rating	Rating	
BAJIO	55.3	26.4	29	17	11	12	22	55	65.0	39	13.9	1.88	57.7	12.1	0.45	53.5	2	54.5	3.50	3	3	6	4	200		
CHECK	57.2	30.0	82	3	2	8	26	64	69.8	69	14.5	1.76	62.8	12.4	0.42	56.9	2	56.5	2.25	2	3	6	4	190		
DISTRIBUTION: A= % Soft										RATINGS:										0		3		6		
B= % Semi-Soft										DOUGH CHAR (DC):										STICKY-WEAK		PLIABLE		ELASTIC		
C= % Semi-Hard										CRUMB COLOR (CC):										YELLOW		GREY		DULL		
D= % Hard										CRUMB GRAIN (CG):										IRREG, THICK		OPEN, THICK		CREAMY		
										CRUMB TEXTURE (CT):										HARSH		COARSE		BUCKY		
																								FINE		
																								SHIRKY		

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USDA / ARS WHEAT QUALITY LAB

Table 30

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A (%)	B (%)	C (%)	D (%)	SKWCS HARDNESS DISTRIBUTION		HARD- NESS	WHEAT PRO (14% mb)		FLOUR EXT (14% mb)		MIX PRO (14% mb)		BAKE ASH PAT		MIX ABS		TIME (min)		D C C G T VOL (cc)		Rating
									INDEX	INDEX		WHEAT PRO (14% mb)	ASH (14% mb)	FLOUR EXT (14% mb)	MIX PRO (14% mb)	ASH (14% mb)	MIX ABS	BAKE ASH PAT	MIX ABS	TIME (min)	C C C G T VOL (cc)					
BH-M1	58.6	37.9	81	1	4	6	25	65	62.2	62	14.0	1.92	57.2	11.7	0.53	53.2	1	59.0	2.75	2	4	5	5	170		
BH-M2	51.1	29.9	83	2	92	6	1	1	7.3	9	13.6	2.11	43.2	11.8	0.44	51.3	2	58.0	3.00	2	4	5	5	178		
BH-M3	51.4	29.4	74	2	88	5	4	3	12.1	8	14.0	1.96	37.4	12.1	0.42	50.8	2	56.8	3.00	2	4	3	5	178		
BH-M4	51.4	30.6	74	2	87	7	2	4	10.9	9	14.0	2.13	43.8	11.9	0.47	50.2	2	58.5	2.75	2	4	5	5	175		
BH-M5	49.9	28.5	68	3	94	4	1	1	7.6	4	14.1	2.24	36.4	12.4	0.46	51.6	2	57.5	2.75	2	4	3	4	168		
IAC18-M	57.9	29.6	61	3	61	20	9	10	30.0	11	15.3	2.18	40.4	13.7	0.46	53.5	2	61.5	3.00	2	3	6	6	184		
IAC17-M	55.7	30.3	57	5	78	15	4	3	20.8	9	15.1	2.07	38.1	13.0	0.41	55.5	2	61.5	1.75	2	1	3	6	174		
IAC24-M	54.2	28.2	66	4	10	5	12	73	64.9	42	14.8	2.00	47.8	13.0	0.49	58.2	3	64.5	2.25	3	3	3	6	192		
ANA-M1	56.8	31.2	48	6	4	9	27	60	66.0	55	13.0	1.85	54.3	10.9	0.48	50.8	1	58.8	2.50	2	3	5	5	173		
ANA-M2	56.6	29.9	41	6	5	11	25	59	66.2	52	13.8	1.91	54.3	11.3	0.41	53.2	1	61.0	2.25	2	1	5	5	182		
ANA-M3	57.7	35.1	45	5	85	8	4	3	17.2	18	16.2	2.13	51.9	11.3	0.40	51.9	2	60.0	2.75	2	4	5	5	180		
BH1146	57.8	30.4	74	3	8	6	23	63	61.3	53	15.3	1.92	41.9	14.3	0.37	55.5	2	59.0	1.75	2	4	3	4	178		
IAC24	55.4	34.0	71	2	78	11	5	6	20.9	22	15.7	2.18	45.7	13.6	0.48	59.3	3	65.0	2.25	3	3	3	6	198		
IAC18	57.6	33.6	67	3	80	12	4	4	20.0	23	15.5	2.15	23.2	13.4	0.39	55.5	2									
IAC17	58.0	35.4	76	1	81	10	7	2	19.9	11	15.9	1.88	33.3	13.5	0.37	55.0	2	62.0	1.50	2	4	3	4	172		
ANAHUAC	56.6	33.8	72	2	5	13	36	46	57.7	50	13.9	1.89	50.0	11.5	0.42	51.3	2	57.0	3.50	2	5	5	4	185		
BAJIO-PLU 50.9	37.8	81	1	98	1	0	1	-10.3	16	14.3	1.83	37.7	11.5	0.35	52.6	1	58.8	2.50	2	4	3	5	174			
TOPABOR 52.5	32.6	80	1	9	15	31	45	58.0	36	14.3	2.09	49.0	12.1	0.47	54.6	1	62.8	2.50	2	4	5	6	192			
SALAMAN	54.1	36.4	83	1	80	5	4	11	12.6	22	13.9	2.21	42.1	11.5	0.45	51.9	2	60.0	2.75	3	3	3	6	183		
BAJIO 66	57.1	31.5	57	4	18	33	27	22	47.5	43	14.8	1.87	52.1	12.5	0.40	54.3	2	58.5	3.00	3	3	5	6	200		

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WHEAT QUALITY LAB

Table 30 (cont)

LOCATION: St. Paul, MN
NURSERY: Specials

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S DISTRIBUTION A B C D INDEX	HARDNESS NESS	NIR PRO (14% mb)	WHEAT ASH (14% mb)	FLOUR EXT (%)	MIX ASH (14 % mb)	BAKE ABS	MIX PAT	TIME (min)	D C G T VOL Rating (cc)	LOAF									
															C	C								
CHECK	58.5	31.3	80	1	1	6	19	74	66.5	69	14.8	1.94	59.9	12.4	0.44	56.9	2	60.8	3.00	3	5	3	6	220

DISTRIBUTION: A= % Soft

B= % Semi-Soft	DOUGH CHAR (DC):	STICKY-WEAK	PLIABLE	ELASTIC
C= % Semi-Hard	CRUMB COLOR (CC):	YELLOW	GREY	DULL
D= % Hard	CRUMB GRAIN (CG):	IRREG, THICK	OPEN, THICK	CREAMY
	CRUMB TEXTURE (CT):	HARSH	COARSE	SILKY

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USDA / ARS WHEAT QUALITY LAB

Table 31

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			NIR WHEAT			FLOUR			FLOUR				
					A	B	C	D	HARD- NESS	INDEX	PRO ASH	EXT	PRO ASH	MIX ABS	MIX PAT	FALLING NUMBER (sec)		
RUSS	59.1	32.0	75	4	0	8	24	68	77.5	77	14.6	1.79	65.4	13.7	0.43	59.0	3	400
OXEN	60.5	29.4	63	4	0	3	15	82	86.0	85	14.5	1.73	69.2	13.7	0.37	58.6	3	400
SD3430	62.4	32.4	71	4	1	5	22	72	79.5	78	14.1	1.70	66.0	13.2	0.43	59.3	3	400
SD3432	61.3	32.4	80	2	1	10	20	69	77.8	78	14.7	1.81	65.1	14.1	0.35	58.2	2	378
SD34333	59.0	31.7	73	3	5	12	21	62	75.5	59	14.2	1.68	67.0	13.5	0.35	57.3	2	400
SD3437	61.0	32.9	79	4	32	29	15	24	46.2	27	14.3	1.73	56.6	13.0	0.32	53.2	2	385
SD3440	60.2	34.5	80	2	3	16	23	58	73.4	63	14.8	1.74	64.8	13.8	0.36	62.5	2	378
SD3446	60.4	32.8	71	4	10	24	18	48	62.5	39	13.6	1.80	63.2	12.7	0.41	57.9	3	400
SD3449	61.5	28.8	64	5	1	10	17	72	78.9	55	14.7	1.77	61.7	13.7	0.41	64.0	5	390
SD3452	58.9	33.6	81	2	1	5	22	72	80.6	67	15.7	1.83	62.3	14.8	0.43	59.0	1	279
SD3455	61.2	32.7	65	4	4	6	26	64	70.2	58	14.2	1.83	64.5	13.2	0.38	59.6	3	338
SD3457	58.8	33.0	76	3	1	5	21	73	78.8	80	14.8	1.76	62.3	13.4	0.40	62.1	10	400
SD3458	60.6	33.7	74	3	1	13	32	54	66.1	59	13.6	1.70	64.2	12.7	0.39	56.9	2	291

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

Table 32

LOCATION: Grotton, SD		FARGO, ND											
NURSERY:	PPY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION	HARD- NESS	WHEAT PRO ASH	FLOUR EXT	FLOUR PRO ASH	MIX ABS	MIX PAT	FALLING NUMBER (sec)
VARIETY		A	B	C	D	INDEX	NESS	(14% mb)	(14% mb)	(14% mb)			
RUSS	59.2	29.0	72	8	0	3	16	81	75.2	68	14.7	1.73	69.5
OXEN	58.2	27.5	52	3	1	7	20	72	70.1	61	14.5	1.45	71.4
SD3430	59.5	27.3	50	3	1	5	8	86	78.7	69	13.8	1.59	67.3
SD3432	59.7	29.0	66	0	2	13	17	68	75.6	65	15.7	1.63	67.6
SD3433	61.4	29.0	59	2	3	9	20	68	72.0	59	15.0	1.66	71.0
SD3437	60.6	30.1	74	1	39	24	15	22	44.6	30	15.0	1.57	62.5
SD3440	60.0	30.8	74	1	3	13	21	63	71.7	59	15.9	1.66	67.3
SD3446	59.1	31.3	75	1	13	27	24	36	55.8	44	14.7	1.77	68.9
SD3449	59.1	27.8	46	3	4	12	19	65	70.0	46	14.9	1.63	67.6
SD3452	58.6	30.2	75	1	2	6	16	76	79.8	70	16.0	1.71	66.7
SD3455	61.0	29.1	58	2	2	10	21	67	71.1	62	15.0	1.60	66.4
SD3457	56.6	26.8	56	3	0	1	11	88	83.8	77	15.0	1.55	64.8
SD3458	61.0	29.8	56	3	0	3	20	77	74.4	67	13.6	1.52	66.0

DISTRIBUTION: $\lambda = 0\%$ soft

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D=0% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 33

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS		WHEAT		FLOUR		FLOUR		MIX		FALLING
					A	B	C	D	INDEX	HARD- NESS	PRO ASH	EXT	PRO ASH	ABS	PAT	NUMBER (sec)		
RUSS	60.7	32.9	84	2	1	6	23	70	74.6	75	14.0	1.77	66.0	13.2	0.41	58.2	3	400
OXEN	60.2	30.1	67	4	1	4	20	75	79.7	74	14.1	1.68	66.7	13.2	0.37	59.0	3	378
SD3400	60.2	27.8	62	5	1	2	6	91	99.4	76	14.6	1.81	63.2	13.7	0.42	58.6	3	146
SD3405	59.0	28.3	66	7	1	3	11	85	85.9	74	14.0	1.76	64.8	12.8	0.40	56.5	2	379
SD3407	60.8	37.4	82	2	1	11	18	70	81.9	80	13.5	1.68	65.1	12.4	0.38	56.2	3	388
SD3410	59.0	32.6	74	5	0	4	10	86	96.0	73	15.0	1.93	63.6	13.7	0.42	56.5	3	387
SD3411	59.4	27.9	68	6	0	1	8	91	98.2	61	13.5	1.75	62.3	12.5	0.41	51.6	2	340
SD3412	59.7	32.0	69	5	4	12	23	61	70.6	47	13.3	1.65	62.9	12.6	0.40	56.5	2	400
SD3413	60.5	28.8	64	9	2	9	12	77	87.7	54	13.6	1.75	65.4	12.3	0.36	54.6	2	175
SD3414	61.0	27.8	52	8	1	3	7	89	96.6	72	14.3	1.67	66.4	13.4	0.39	56.5	3	400
SD3415	61.4	31.1	79	4	1	3	7	89	95.3	73	14.3	1.70	63.5	13.1	0.38	57.6	3	400
SD3416	60.5	33.2	75	4	1	11	29	59	69.1	73	14.0	1.72	67.6	13.4	0.37	57.3	4	400
SD3417	60.1	24.4	48	1	1	3	16	80	78.0	68	13.5	1.74	65.4	12.9	0.38	57.6	3	400
SD3419	60.5	35.0	75	4	1	11	21	67	75.4	71	14.4	1.75	64.2	13.1	0.37	58.2	4	400
SD3420	62.3	29.6	68	5	1	7	18	74	79.2	77	14.0	1.80	65.7	12.9	0.39	56.2	3	400
SD3422	61.3	29.6	66	5	0	3	12	85	97.1	73	15.4	1.83	62.9	14.1	0.38	58.2	3	223
SD3423	59.8	33.1	76	4	0	6	15	79	90.7	76	15.1	1.71	65.7	14.1	0.41	59.6	3	396
SD3429	62.0	29.2	70	5	0	2	13	85	89.6	70	13.5	1.71	62.6	12.3	0.38	57.3	3	400

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 34

LOCATION: Groton, SD		FARGO, ND																
NURSERY:	PYT	TW	KWT	LG	SM	SKWCS	HARDNESS	NIR	WHEAT	FLOUR	FLOUR	MIX	MIX	FALLING				
VARIETY	(lb/bu)	(gr)	(%)	(%)	(%)	DISTRIBUTION	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER				
			A	B	C	D	INDEX	NESS	(14% mb)	(%)	(14 % mb)			(sec)				
RUSS	59.6	29.9	71	2	1	4	18	77	76.4	76	14.6	1.69	65.7	13.8	0.40	60.0	3	400
OXEN	58.8	26.9	54	3	1	2	19	78	75.3	75	14.4	1.61	67.3	13.4	0.34	57.6	3	380
SD3400	60.2	25.9	20	5	0	2	5	93	88.9	81	15.0	1.58	61.0	13.7	0.38	57.6	3	400
SD3405	59.8	26.8	48	4	0	2	6	92	88.2	84	15.2	1.68	64.5	14.0	0.36	57.9	3	356
SD3407	59.0	30.2	59	2	0	5	10	85	90.4	81	13.9	1.51	62.6	12.5	0.36	56.2	3	400
SD3410	58.5	29.9	54	2	0	4	11	85	82.2	82	16.0	1.75	63.6	15.1	0.39	59.3	3	400
SD3411	57.6	27.0	35	4	2	5	16	77	78.4	64	15.0	1.60	57.4	13.5	0.34	55.0	3	380
SD3412	58.4	28.1	43	4	3	11	20	67	67.7	50	13.9	1.56	64.2	13.0	0.37	55.5	2	400
SD3413	57.4	23.0	10	15	3	8	24	65	72.7	52	14.4	1.69	62.9	13.2	0.37	56.2	2	331
SD3414	60.5	24.7	16	6	1	1	7	91	91.0	73	14.6	1.52	66.3	13.7	0.38	56.5	3	400
SD3415	59.8	24.7	39	4	1	3	7	89	84.2	68	14.3	1.59	63.9	13.1	0.37	53.5	3	400
SD3416	59.8	29.2	64	3	0	8	21	71	69.6	65	14.4	1.58	63.8	Num			400	
SD3417	59.9	22.0	7	11	3	6	15	76	71.2	63	13.8	1.57	67.3	13.1	0.37	57.6	3	400
SD3419	60.5	32.1	71	2	1	8	22	69	72.2	67	15.0	1.66	66.7	13.8	0.34	57.3	3	400
SD3420	61.8	26.9	29	5	2	4	13	81	82.9	68	14.4	1.54	65.4	13.1	0.37	53.5	2	400
SD3422	61.7	26.3	28	4	1	6	11	82	84.9	77	15.1	1.72	63.6	14.0	0.40	57.3	2	375
SD3423	58.9	30.1	60	3	3	7	16	74	77.6	81	15.5	1.70	64.2	14.7	0.38	57.9	2	390
SD3429	59.3	27.3	22	5	3	5	7	85	84.3	71	14.0	1.51	62.6	12.9	0.38	55.0	2	400

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Sem-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

LOCATION: St. Paul, MN
NURSERY: PY-1

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			WHEAT		FLOUR			FLOUR		MIX		FALLING	
					A	B	C	D	INDEX	HARDNESS	NIR	PRO	ASH	EXT	PRO	ASH	ABS	PAT
CHRIS	58.9	27.6	67	3	0	6	14	80	85.6	64	15.2	1.74	68.2	14.8	0.44	62.1	3	400
VERDE	58.7	30.5	71	3	3	10	24	63	69.3	66	14.1	1.80	69.8	13.4	0.44	60.8	3	334
2375	59.1	31.4	64	4	2	6	18	74	81.5	69	14.8	1.93	67.9	13.8	0.46	60.3	3	400
MN97001	58.6	33.6	67	2	1	7	25	67	70.3	85	14.2	1.74	69.4	13.0	0.44	62.1	4	370
MN97003	59.2	31.6	61	3	4	11	21	64	73.6	63	14.7	1.73	68.2	13.9	0.45	62.1	3	400
MN97004	58.8	28.6	62	3	2	8	22	68	75.0	46	13.3	1.79	56.8	12.1	0.39	56.2	2	400
MN97006	58.2	30.2	67	3	3	11	25	61	72.0	46	13.4	1.81	70.8	12.7	0.43	57.3	2	400
MN97008	59.2	29.1	64	3	0	2	10	88	84.9	70	16.0	1.82	67.3	15.1	0.47	63.1	3	400
MN97009	57.0	29.5	56	5	9	16	27	48	64.9	58	14.7	1.72	68.9	13.6	0.41	62.1	4	400
MN97010	59.0	30.9	66	4	2	6	17	75	80.7	67	14.3	1.75	70.4	13.3	0.48	62.5	3	361
									DISTRIBUTION:	A=% Soft								
										B=% Semi-Soft								
										C=% Semi-Hard								
										D=% Hard								

Table 35

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USDA / ARS
WHEAT QUALITY LAB

Table 36

LOCATION:		St. Paul, MN			FARGO, ND										FLOUR		MIX		FALLING						
NURSERY:		PY-2			SKWCS					HARDNESS		WHEAT		PRO ASH		PRO ASH		EXT		(14% mb)		ABS		PAT	
					DISTRIBUTION					NIR		PRO ASH		EXT		(14% mb)		(%)		(14 % mb)		ABS		PAT	
VARIETY	TW	KWT	LG	SM	A	B	C	D	INDEX	HARDNESS	NESS	WHEAT	PRO ASH	EXT	PRO ASH	EXT	(%)	(%)	MIX	MIX	FALLING				
	(lb/bu)	(gr)	(%)	(%)																					
CHRIS	58.4	27.1	67	3	8	12	20	60	72.8	66	15.3	1.75	67.6	14.8	0.44	60.8	3	400							
VERDE	56.8	28.9	69	3	1	3	12	84	78.7	71	14.2	1.93	69.4	13.4	0.45	58.2	2	370							
2375	59.4	30.8	61	3	1	4	19	76	79.1	62	14.9	1.80	67.9	14.0	0.46	59.3	2	400							
MN97022	57.8	29.2	62	4	1	9	23	67	70.7	53	13.6	1.74	68.2	13.0	0.43	59.3	2	391							
MN97039	58.6	28.8	51	5	3	8	24	65	73.3	45	14.1	1.85	68.2	13.1	0.44	57.9	2	400							

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D=7/8 3211-301

Cu% Semiland

D=0% Hand

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 37

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			WHEAT			FLOUR			FLOUR		
					DISTRIBUTION			PRO			PRO			ASH		
					A	B	C	D	INDEX	NESS	(14% mb)	ASH	(%)	ASH	EXT	(%)
CHRIS	58.3	27.0	67	3	1	2	12	85	88.9	75	15.3	1.77	67.3	14.9	0.46	61.1
VERDE	56.1	27.4	63	5	0	1	16	83	78.7	69	14.1	1.87	68.9	13.2	0.46	59.0
2375	58.2	30.9	59	4	1	9	21	69	76.4	63	14.8	1.85	67.0	14.1	0.45	60.5
MN97045	57.7	29.7	69	4	1	10	23	66	71.4	75	13.4	1.79	67.3	12.5	0.42	58.2
MN97051	55.1	27.9	54	6	2	7	25	66	70.6	53	13.5	1.80	66.0	12.4	0.46	56.9
MN97060	57.0	26.1	42	8	1	3	19	77	74.6	54	13.5	1.89	63.8	12.6	0.44	55.0
MN97063	57.4	28.8	63	4	2	6	20	72	77.4	69	14.0	1.76	67.6	13.0	0.43	58.6

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 38

LOCATION:	St. Paul, MN		FARGO, ND															
NURSERY:	PY-4		SKWCS	HARDNESS	WHEAT		FLOUR		FLOUR		MIX		FALLING					
VARIETY	TW	KWT	LG	SM	DISTRIBUTION	HARD.	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER				
	(lb/bu)	(gr)	(%)	(%)	A B C D	INDEX	NESS	(14% mb)	(%)	(14 % mb)	(%)		(sec)					
CHRIS	58.3	26.7	63	3	0	5	13	82	83.7	81	15.3	1.77	64.5	14.8	0.44	60.3	3	400
VERDE	58.0	29.0	70	2	2	3	21	74	73.7	81	14.0	1.80	68.9	13.2	0.42	58.6	3	331
2375	58.8	33.1	63	3	5	14	25	56	67.1	79	14.9	1.81	66.0	13.7	0.43	59.3	3	400
MN97072	56.6	25.0	22	10	2	8	25	65	66.3	65	15.8	1.89	63.9	15.0	0.42	59.3	3	400
MN97073	58.1	27.8	44	5	2	4	22	72	68.9	70	15.4	1.84	62.0	14.4	0.43	59.3	2	400
MN97081	57.8	31.5	64	4	0	8	24	68	69.6	71	14.2	1.94	63.8	13.2	0.47	59.3	2	272
MN97083	54.7	26.9	48	6	2	7	21	70	67.5	54	14.2	1.87	64.5	13.5	0.49	60.8	4	400
MN97084	55.0	27.2	51	6	2	5	22	71	68.1	60	14.3	1.94	64.2	13.5	0.49	61.8	4	387

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Sem-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 39

LOCATION: NURSERY:	St. Paul, MN					FARGO, ND					
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION	NIR HARDNESS	WHEAT PRO ASH	FLOUR EXT	FLOUR PRO ASH	MIX ABS	MIX PAT
VARIETY	A	B	C	D	NESS	(14% mb)	(%)	(14 % mb)			
CHRIS	58.8	28.1	69	3	2	6	14	78	77.3	75	15.5
VERDE	57.6	28.5	72	3	3	4	23	70	70.2	77	14.3
2375	60.2	32.6	67	3	3	10	20	67	71.5	73	14.8
MN97087	58.6	28.7	60	5	2	8	25	65	68.7	55	13.4
MN97089	56.6	27.4	59	4	4	10	21	65	69.5	60	14.0
MN97091	56.6	30.0	63	4	3	13	26	58	64.7	58	13.9
MN97097	58.8	33.4	73	2	6	17	22	55	65.4	61	13.9
MN97105	57.8	30.6	69	3	0	2	14	84	76.0	76	14.2
DISTRIBUTION:											

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

Table 40

LOCATION:	St Paul, MN			FARGO, ND												FLOUR			MIX			FALLING		
NURSERY:	PY-6			SKWCS			HARDNESS		NIR			WHEAT		FLOUR			FLOUR			MIX			MIX	FALLING
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION	A	B	C	D	INDEX	HARD- NESS	PRO (14% mb)	ASH	EXT	PRO (14 % mb)	ASH	ABS	PAT	NUMBER (sec)	MIX	ABS	PAT	NUMBER (sec)	
CHRIS	58.2	28.4	72	3	1	5	21	73	77.2	83	15.2	1.84	64.8	14.6	0.45	60.8	3	381						
VERDE	57.8	29.2	74	2	2	6	19	73	70.0	78	14.2	1.81	68.6	13.5	0.44	60.0	3	307						
2375	58.5	31.6	67	3	1	10	19	70	74.9	73	14.7	1.86	67.0	14.0	0.46	61.1	3	400						
MN97118	57.9	32.6	73	3	2	12	25	61	71.2	62	13.6	1.84	62.9	12.9	0.42	58.6	1	360						
MN97119	58.6	29.0	55	4	18	24	17	41	59.9	27	13.4	1.78	50.5	12.1	0.38	52.2	1	262						
MN97123	55.8	28.0	53	6	0	6	18	76	71.8	57	15.2	1.91	60.7	14.3	0.34	58.6	2	274						
MN97126	56.9	26.0	37	8	1	2	9	88	80.8	85	14.8	2.01	61.7	13.9	0.54	60.5	3	400						

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

LOCATION: St. Paul, MN
NURSERY: PY-7

Table 41
FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			WHEAT		FLOUR			FLOUR			
					A	B	C	D	INDEX	HARDNESS	NIR	PRO	ASH	EXT	PRO	MIX
CHRIS	58.4	25.9	62	4	1	6	14	79	81.3	79	15.2	1.80	64.2	15.0	0.44	60.5
VERDE	57.8	28.5	70	2	1	5	23	71	71.9	75	14.1	1.89	67.3	13.4	0.43	59.3
2375	59.2	32.8	67	4	1	7	24	68	74.9	77	14.6	1.99	65.1	13.9	0.45	59.0
MN97139	56.6	29.4	63	4	1	6	20	73	74.2	78	14.1	1.86	65.4	13.5	0.46	58.2

DISTRIBUTION: A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

(14% mb)

(%)

(%)

(%)

(%)

(%)

(%)

(%)

(%)

(%)

(%)

(%)

(%)

(sec)

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USDA / ARS WHEAT QUALITY LAB

Table 42

LOCATION: *St. Paul, MN*
NURSERY: PY-8

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION			WHEAT			FLOUR			FLOUR			MIX		
					A	B	C	D	INDEX	HARDNESS	NIR	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER
CHRIS	59.4	27.6	70	3	2	5	16	77	77.5	79	15.2	1.81	64.5	14.3	0.42	59.0	3	393	
VERDE	58.0	28.2	68	3	1	9	18	72	70.9	71	14.1	1.83	67.3	13.5	0.42	57.3	2	238	
2375	59.5	32.5	68	3	2	8	27	63	71.6	71	14.3	1.87	67.0	13.7	0.52	57.9	3	400	
MN97149	55.7	30.7	65	4	1	5	17	77	72.9	79	14.2	1.95	64.8	13.7	0.50	58.2	2	400	
MN97156	57.0	30.2	60	5	2	7	30	61	65.4	51	14.2	1.90	61.3	13.8	0.49	55.8	1	381	
MN97167	57.6	28.6	57	5	0	4	16	80	75.2	78	14.3	1.90	66.4	13.5	0.46	58.2	3	400	
MN97168	60.0	29.1	69	3	1	4	14	81	72.1	68	14.0	1.77	63.6	13.4	0.43	61.8	5	354	

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 43

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS			WHEAT			FLOUR			FLOUR			MIX		
					A	B	C	D	HARD- NESS	PRO INDEX	ASH (14% mb)	NIR	PRO ASH	EXT	PRO ASH	ABS	MIX PAT					
CHRIS	59.0	28.0	68	3	0	8	17	75	77.4	79	15.4	1.83	64.8	15.2	0.43	60.3	3	400				
VERDE	57.6	28.6	68	3	0	5	22	73	71.2	75	14.3	1.83	67.9	13.5	0.45	59.0	2	283				
2375	59.7	33.6	70	3	3	8	25	64	71.6	73	14.8	1.83	65.4	13.9	0.43	57.6	2	400				
MN97172	58.3	26.3	36	8	4	7	21	68	70.1	53	14.3	1.98	63.8	13.3	0.43	57.3	2	358				
MN97173	57.9	26.8	45	6	0	2	7	91	81.9	69	13.8	1.97	61.7	12.7	0.55	56.9	2	350				
MN97178	57.0	25.0	24	11	2	5	13	80	77.4	60	15.0	1.90	66.4	14.8	0.79	60.3	4	400				
MN97179	56.8	26.7	41	6	3	3	10	84	82.2	66	15.6	2.02	66.0	15.3	0.49	60.0	3	400				
MN97183	57.0	25.0	50	5	2	2	5	91	87.4	62	14.7	1.84	67.0	14.4	0.44	58.6	3	399				

DISTRIBUTION:

A=% Soft

B=% Sem-Sof

C=% Semi-Hard

D=% Hard

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USDA / ARS

WHEAT QUALITY LAB

Table 44

LOCATION: St. Paul, MN
NURSERY: PY-10

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS		WHEAT		FLOUR			FLOUR			MIX		
					A	B	C	D	INDEX	HARD- NESS	PRO (14% mb)	ASH	EXT	PRO (14 % mb)	ASH	ABS	PAT	NUMBER (sec)		
CHRIS	58.3	26.7	63	3	0	2	13	85	87.0	69	15.5	1.94	65.1	14.9	0.45	60.3	3	388		
VERDE	57.8	28.0	66	4	2	4	20	74	77.1	74	14.5	1.90	67.3	13.8	0.42	59.0	3	315		
2375	54.0	29.3	37	8	5	16	23	56	67.9	42	15.5	2.01	58.5	14.7	0.45	58.2	3	307		
MN97195	60.1	28.8	45	6	1	4	14	81	80.7	69	15.7	1.80	63.2	15.2	0.44	60.5	4	378		
MN97198	60.9	25.8	32	8	19	29	23	29	52.8	19	15.2	1.91	49.5	13.5	0.37	56.2	3	260		
MN97209	56.4	27.2	47	10	1	3	13	83	76.9	60	14.2	1.88	62.6	13.3	0.45	60.3	4	366		

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

LOCATION: *St. Paul, MN*
NURSERY: PY-11

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION			WHEAT PRO ^a ASH			FLOUR EXT (%)			FLOUR PRO ^a ASH (14 % mb)			MIX ABS			MIX PAT			FALLING NUMBER (sec)			
					A	B	C	D	INDEX	HARD- NESS	NESS	(14% mb)	EXT	PRO ^a	ASH	(%)	EXT	PRO ^a	ASH	(%)	EXT	PRO ^a	ASH	(%)	EXT	PRO ^a
CHRIS	58.4	26.3	58	4	2	2	12	84	80.2	78	15.2	1.82	62.6	14.3	0.43	60.8	4	345								
VERDE	57.8	27.9	63	3	1	6	16	77	74.5	71	14.3	1.83	66.4	13.5	0.41	61.1	3	334								
2375	58.6	28.1	47	4	0	4	12	84	83.9	70	14.3	1.91	64.2	13.4	0.48	59.0	3	368								
MN97211	55.8	29.3	52	5	4	10	25	61	69.3	46	15.1	1.99	58.5	14.3	0.43	57.6	2	311								
MN97213	56.2	30.6	57	5	1	3	17	79	81.1	64	14.9	1.94	63.0	13.8	0.50	57.3	3	180								
MN97214	56.4	32.5	66	4	2	6	15	77	79.3	68	15.4	1.98	60.7	14.3	0.48	57.6	2	185								

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

Table 45

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 46

LOCATION: St. Paul, MN		FARGO, ND										WHEAT		FLOUR		MIX		
NURSERY:	PY-12	SKWCS			HARDNESS		WHEAT			EXT	PRO	ASH	ABS	PAT	NUMBER			
VARIETY	TW	KWT	LG	SM	DISTRIBUTION		NIR	PRO	ASH	EXT	PRO	ASH	ABS	PAT	(sec)			
	(lb/bu)	(gr)	(%)	(%)	A	B	C	D	INDEX	NESS	(14% mb)	(%)	(14 % mb)	(%)				
CHRIS	59.0	27.5	68	3	1	4	16	79	80.5	68	15.5	1.85	64.8	15.1	0.44	60.3	3	400
VERDE	57.1	28.3	65	5	1	5	19	75	77.1	75	14.4	1.83	67.3	13.6	0.45	60.0	2	400
2375	59.9	32.9	66	3	2	10	22	66	77.6	63	14.8	1.90	66.4	13.6	0.57	60.5	3	400
MN97237	57.5	24.3	25	12	1	0	3	96	101.4	69	14.0	2.00	60.4	13.4	0.57	60.0	3	272

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 47

LOCATION: St. Paul, MN		FARGO, ND														MIX	
NURSERY:	PY-13	SKWCS					HARDNESS		WHEAT		FLOUR		FLOUR		MIX		FALLING
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION	A %	B %	C %	D %	PRO NESS	ASH (14% mb)	EXT (%)	PRO (%)	ASH (14% mb)	ABS	PAT	NUMBER (sec)
CHRIS	58.5	26.8	63	3	1	5	13	81	81.0	71	15.1	1.75	64.2	14.8	0.44	60.5	4
VERDE	57.8	27.9	70	4	1	4	18	77	76.3	75	14.6	1.81	65.4	13.5	0.43	60.3	3
2375	60.3	34.1	72	4	2	9	27	62	71.5	68	14.2	1.85	70.5	13.3	0.45	59.3	3
MN97255	58.9	32.5	70	2	0	12	30	58	72.2	63	14.0	1.66	69.5	13.2	0.44	59.0	2
MN97257	58.3	32.2	70	3	2	11	30	57	66.6	54	14.0	1.95	61.3	13.1	0.47	57.9	2
MN97261	56.9	28.0	41	10	0	5	14	81	79.2	62	13.2	1.73	66.4	12.4	0.50	57.3	2

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USDA / ARS

WHEAT QUALITY LAB

LOCATION: St. Paul, MN
NURSERY: PY-14

Table 48

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS			WHEAT			FLOUR			FLOUR			MIX					
					DISTRIBUTION			HARDNESS			WHEAT			EXT			PRO			ASH			PAT		NUMBER
					A	B	C	D	INDEX	NESS	PRO	ASH	EXT	(%)	(14% mb)	(%)	(14% mb)	(%)	(14% mb)	(sec)					
CHRIS	59.4	27.3	63	4	1	7	14	78	76.4	71	14.9	1.82	67.3	14.2	0.45	60.0	3	400							
VERDE	58.1	29.6	72	3	1	6	20	73	76.5	73	13.8	1.79	69.8	13.1	0.47	59.6	3	271							
2375	59.8	33.2	70	2	1	9	25	65	72.2	64	14.1	1.70	69.4	13.2	0.46	58.6	3	400							
MN97283	59.1	27.3	56	6	1	5	21	73	76.7	67	15.3	1.79	67.6	14.7	0.48	59.6	3	351							
MN97286	59.9	30.6	68	3	0	2	13	85	87.1	68	13.8	1.89	67.3	13.4	0.51	57.9	2	246							

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

LOCATION: St. Paul, MN
NURSERY: PY-15

USDA / ARS
WHEAT QUALITY LAB

FARGO, ND

Table 49

LOCATION: St. Paul, MN		FARGO, ND																
NURSERY:	PY-15	SKWCS			HARDNESS		WHEAT			FLOUR		MIX		FALLING				
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION	HARD- NESS	PRO (14% mb)	ASH (%)	EXT (%)	PRO (14 % mb)	ASH (%)	MIX ABS	MIX PAT	NUMBER (sec)				
CHRIS	58.9	28.8	66	3	3	5	17	75	76.5	76	15.0	1.78	66.4	14.7	0.44	60.8	3	383
VERDE	58.4	30.4	76	3	3	6	25	66	70.6	73	14.0	1.95	68.9	12.8	0.45	60.0	3	307
2375	60.2	33.5	69	4	2	7	26	65	72.2	70	14.1	1.70	68.9	13.3	0.44	58.2	2	400
MN97302	59.2	28.8	51	6	0	5	14	81	82.0	76	15.7	1.95	67.3	14.9	0.44	62.1	4	391
MN97305	58.3	32.8	73	3	6	17	33	44	61.6	58	14.9	1.87	67.3	14.0	0.43	57.6	3	378
MN97307	58.7	28.2	60	4	1	6	20	73	73.3	56	13.6	1.84	69.2	12.8	0.46	55.3	2	361
MN97311	58.4	30.2	62	4	2	6	17	75	77.5	71	14.8	1.91	65.4	14.2	0.47	60.3	4	340

B=0% Semi-Sat

CHINESE

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

Table 50

LOCATION: St. Paul, MN		FARGO, ND									
NURSERY:	PY-16	SKWCS	HARDNESS	WHEAT		FLOUR		FLOUR		MIX	MIX
VARIETY	TW	KWT	LG	SM	DISTRIBUTION	HARD-	PRO	ASH	EXT	PRO	ASH
(lb/bu)	(gr)	(%)	(%)	(%)	A B C D INDEX	NESS	(14% mb)	(%)	(%)	(14% mb)	(sec)
CHRIS	58.4	26.9	63	3	1 4 12 83	81.7	82	15.6	1.80	64.5	14.8
VERDE	56.8	29.4	73	2	0 4 19 77	77.7	69	13.8	1.97	65.4	12.6
2375	60.1	34.4	73	2	1 9 29 61	71.1	75	14.5	1.74	66.4	13.3
MN97332	57.5	30.1	56	4	2 7 16 75	77.3	52	14.8	2.41	58.7	13.8
DISTRIBUTION: A=% Soft											

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

LOCATION: St. Paul, MN
NURSERY: PY-17

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			WHEAT			FLOUR			FLOUR			MIX			FALLING		
					A	B	C	D	HARD- NESS	DISTRIBUTION	NIR	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER (sec)			
CHRIS	58.6	27.2	63	3	2	5	11	82	88.4	68	15.3	1.77	64.8	14.5	0.43	59.6	3	400				
VERDE	58.1	29.6	73	2	1	6	20	73	74.1	71	13.8	1.67	67.3	12.7	0.44	55.5	2	297				
2375	59.1	32.8	68	3	2	3	18	77	89.3	68	13.6	1.74	67.3	12.6	0.47	55.0	2	400				
MN97351	57.4	29.5	58	5	3	10	19	68	77.8	55	13.6	1.76	67.6	12.6	0.40	55.8	3	290				
MN97352	58.0	28.6	57	5	1	12	86	84.7	77	15.0	1.77	67.0	14.1	0.51	57.9	4	385					
										DISTRIBUTION:	A=% Soft											
										B=% Semi-Soft												
										C=% Sem-Hard												
										D=% Hard												

Table 51

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USDA / ARS
WHEAT QUALITY LAB

Table 52

LOCATION: St. Paul, MN		FARGO, ND										FLOUR		MIX	MIX	FALLING		
NURSERY:	PY-18	TW	KWT	LG	SM	SKWCS HARDNESS			WHEAT		PRO	ASH	EXT	PRO	ASH	PAT	NUMBER	
VARIETY	(lb/bu)	(gr)	(%)	(%)	(%)	A	B	C	D	INDEX	HARDNESS	(14% mb)	(%)	(14% mb)	(sec)			
CHRIS	58.8	27.5	65	4	0	2	18	80	76.5	72	15.7	1.77	64.5	14.7	0.44	57.6	3	400
VERDE	57.8	30.2	73	2	6	15	23	56	64.0	80	14.0	1.90	67.3	13.1	0.48	59.3	3	288
2375	59.8	33.7	73	3	1	12	24	63	72.1	69	14.4	1.85	66.4	13.3	0.44	57.3	3	400
MN97364	57.4	29.5	51	6	50	14	8	28	40.9	41	14.9	1.88	54.2	13.4	0.41	55.5	2	239
MN97365	57.6	28.0	49	7	2	3	9	86	83.7	68	14.7	1.87	63.9	13.9	0.48	60.0	3	301
MN97367	57.8	29.4	57	6	2	9	22	67	70.9	61	14.1	1.78	65.1	13.3	0.43	56.5	3	398
MN97369	57.3	29.2	56	5	4	12	15	69	74.3	64	14.7	1.91	63.6	13.7	0.47	60.0	5	400
MN97372	57.4	29.7	68	4	3	13	81	75.3	76	14.8	1.88	63.6	13.8	0.44	59.0	4	278	
DISTRIBUTION:		A=% Soft																
		B=% Semi-Soft																
		C=% Semi-Hard																
		D=% Hard																

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USDA / ARS
WHEAT QUALITY LAB

Table 53

LOCATION: St. Paul, MN		FARGO, ND																
NURSERY:	PY-19	SKWC'S			HARDNESS		WHEAT			FLOUR		FLOUR		MIX		FALLING		
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION	A (%)	B (%)	C (%)	D (%)	HARD- NESS	PRO ASH (14% mb)	EXT (%)	PRO ASH (14% mb)	ABS PAT	MIX PAT	NUMBER (sec)		
CHRIS	58.0	27.5	65	5	2	6	19	73	74.9	75	15.5	1.84	64.5	14.6	0.43	58.2	3	400
VERDE	57.3	29.0	72	3	1	4	17	78	73.3	81	14.0	1.79	67.3	13.2	0.44	57.6	2	312
2375	59.4	32.8	69	4	1	7	22	70	81.4	74	14.3	1.75	67.3	13.4	0.44	57.3	2	400
MN97395	57.8	31.5	68	3	5	24	22	49	63.0	54	14.3	1.81	65.4	13.8	0.41	56.5	2	343
MN97396	57.2	27.1	46	8	2	9	19	70	77.1	48	15.0	1.73	67.0	14.0	0.43	58.2	3	320

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C-8% Seml Hand

D=/% Hard

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 54

LOCATION:	St Paul, MN			WHEAT QUALITY LAB														
NURSERY:	PY-20			FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION	HARDNESS	NIR	WHEAT PRO ASH	FLOUR EXT	FLOUR EXT	FLOUR EXT	MIX PRO	MIX ASH	MIX ABS	MIX PAT	FALLING NUMBER (sec)		
	A	B	C	D	INDEX	NESS	(14% mb)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)			
CHRIS	59.5	27.8	46	8	3	6	16	75	77.0	74	15.3	1.81	66.4	14.5	0.43	59.0	3	400
VERDE	58.4	30.5	66	4	3	9	24	64	69.7	89	14.0	1.72	68.5	13.1	0.42	56.5	2	304
2375	60.1	32.7	76	5	2	10	26	62	70.7	66	13.6	1.65	67.3	12.4	0.43	55.0	2	400
MN97400	59.2	34.7	81	3	11	27	25	37	57.5	52	14.9	1.74	65.4	14.1	0.43	58.2	3	289
MN97419	58.6	27.5	56	4	3	8	21	68	69.1	66	13.0	1.80	65.1	12.1	0.41	58.6	4	318

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Sem-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 55

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION			WHEAT PRO ASH			FLOUR EXT (%)			FLOUR PRO ASH			MIX ABS (14 % mb)			MIX PAT			FALLING NUMBER (sec)		
					A	B	C	D	INDEX	HARD- NESS	NR	WHEAT EXT	PRO	ASH	NR	WHEAT EXT	PRO	ASH	MIX	MIX	FALLING NUMBER (sec)				
										(14% mb)	(%)														
CHRIS	60.2	28.7	65	4	0	6	16	78	79.5	77	15.1	1.78	63.9	14.2	0.40	59.6	3	400							
VERDE	58.6	30.3	73	3	1	9	24	66	72.2	74	14.4	1.75	67.3	13.1	0.42	58.2	3	296							
2375	60.8	34.0	69	4	3	9	30	58	69.3	71	14.4	1.78	67.0	13.2	0.44	58.2	3	400							
MN97421	59.8	31.8	65	3	0	10	28	62	69.4	74	15.1	1.90	65.7	14.0	0.42	60.5	4	360							
MN97422	59.9	31.6	67	3	18	26	23	33	53.8	62	14.4	1.84	66.0	13.5	0.42	58.6	4	362							
MN97423	59.8	31.2	66	3	1	4	26	69	70.3	71	14.3	1.88	66.0	13.5	0.41	58.6	4	376							
MN97424	59.3	31.6	67	3	1	6	28	65	67.1	72	13.7	1.85	63.2	12.5	0.49	55.5	2	309							
MN97425	61.1	31.2	64	3	1	5	26	68	71.4	62	13.9	1.81	64.5	13.0	0.44	56.5	3	298							
MN97434	61.1	32.5	71	3	4	8	21	67	75.4	74	15.5	1.75	64.5	14.3	0.46	64.0	4	400							

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS

Table 56

LOCATION: St. Paul, MN
NURSERY: PY-22

WHEAT QUALITY LAB

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS		WHEAT		FLOUR		FLOUR		MIX		FALLING	
					A	B	C	D	INDEX	HARD-	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER	(sec)
CHRIS	57.7	27.8	61	5	2	5	20	73	80.1	68	15.7	1.77	64.2	15.2	0.45	60.0	3	384	
VERDE	58.4	30.3	73	3	2	6	27	65	67.3	75	14.0	1.91	67.3	13.1	0.42	58.2	3	275	
2375	59.5	32.2	69	3	1	5	23	71	77.4	68	14.5	1.74	66.0	13.4	0.43	59.0	3	398	
MN97448	60.2	28.6	62	5	2	11	17	70	73.2	54	15.3	1.79	64.2	14.4	0.43	60.3	3	258	
MN97450	58.2	26.3	41	9	2	3	12	83	86.6	55	13.1	1.80	64.2	12.4	0.51	57.3	3	392	
MN97456	59.0	32.1	69	5	0	2	13	85	86.5	79	15.8	1.80	64.5	14.7	0.46	60.8	5	288	

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 57

LOCATION: St. Paul, MN		FARGO, ND										MIX						
NURSERY:	PY-23	SKWCS	HARDNESS	WHEAT			FLOUR			MIX			PAT					
VARIETY	TW	KWT	LG	SM	DISTRIBUTION	HARD.	PRO	ASH	EXT	PRO	ASH	ABS	NUMBER					
	(lb/bu)	(gr)	(%)	(%)	A B C D	INDEX	NESS	(14% mb)	(%)	(14% mb)	(%)		sec)					
CHRIS	58.9	27.3	66	3	1	7	15	77	82.9	73	15.2	1.84	65.1	14.4	0.45	60.3	4	393
VERDE	59.0	30.4	73	3	1	8	26	65	71.2	79	14.0	1.70	67.9	12.8	0.43	58.6	3	338
2375	60.3	33.7	71	3	1	12	27	60	70.3	72	14.5	1.71	67.6	13.4	0.41	59.3	3	400
MN97469	60.5	31.3	68	5	1	4	20	75	75.5	91	13.6	1.74	68.2	12.8	0.48	59.0	3	400
MN97479	60.2	32.4	74	3	1	7	28	64	67.5	68	13.8	1.78	65.4	12.9	0.48	59.0	3	393
MN97480	60.8	34.4	79	3	0	4	23	73	73.9	98	15.3	1.93	63.9	14.4	0.49	60.8	3	318
MN97482	59.2	31.9	70	3	2	4	27	67	70.1	80	13.6	1.78	64.8	12.9	0.46	59.6	4	335
DISTRIBUTION:																		

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 58

LOCATION: NURSERY:	St. Paul, MN				FARGO, ND							
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWC'S DISTRIBUTION	HARDNESS	NIR PRO	WHEAT ASH				
VARIETY	A	B	C	D	INDEX	NESS	(14% mb)	FLOUR EXT (%)	FLOUR PRO (%)	MIX ABS	MIX PAT	FALLING NUMBER (sec)
CHRIS	58.9	27.0	64	4	3	7	15	75	76.2	80	15.3	1.70
VERDE	58.6	30.1	74	3	1	7	26	66	67.7	80	14.2	1.76
2375	60.6	33.9	71	4	1	8	26	65	72.7	78	14.5	1.75
MN97491	60.4	32.6	72	2	1	7	17	75	76.7	87	15.2	1.95
MN97496	60.7	33.7	76	2	1	4	24	71	69.3	86	15.0	1.80
MN97498	60.7	33.4	73	3	1	2	25	72	69.5	77	15.1	1.90
MN97500	59.8	34.4	75	3	2	4	24	70	74.3	89	14.9	1.83
MN97503	58.7	33.0	70	2	1	6	24	69	69.9	76	15.0	1.85
DISTRIBUTION:												

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

DISTRIBUTION:
A=% Soft
B=% Semi-Soft
C=% Semi-Hard
D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 59

LOCATION: St. Paul, MN		FARGO, ND															FALLING	
NURSERY:	PY-25	SKWCS			HARDNESS			WHEAT			FLOUR			FLOUR			NUMBER (sec)	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A (%)	B (%)	C (%)	D (%)	HARD- NESS	PRO ASH (14% mb)	EXT (%)	PRO ASH (14% mb)	ABS	PAT	MIX ABS	MIX PAT	FALLING	
CHRIS	54.2	24.3	34	9	3	3	7	87	90.4	67	17.3	2.06	57.9	16.2	0.47	60.0	4	376
VERDE	56.9	27.5	60	3	0	3	13	84	83.4	71	14.5	1.88	64.2	13.7	0.42	59.3	3	397
2375	57.4	31.1	57	4	2	7	20	71	80.4	69	15.7	2.03	61.3	14.5	0.46	58.6	4	400
MN97513	56.5	26.8	53	5	36	28	19	17	41.1	16	14.7	2.29	36.9	12.4	0.41	52.6	2	244
MN97514	55.3	27.2	50	7	58	19	10	13	32.4	22	14.8	2.03	33.3	12.6	0.41	55.5	3	293
MN97518	59.6	29.9	62	3	1	1	5	93	93.5	77	15.9	1.96	58.7	14.5	0.45	58.2	3	400
MN97519	58.4	32.7	63	3	27	21	9	43	57.5	28	15.4	2.07	43.9	12.5	0.38	55.0	2	250
MN97520	57.0	25.5	39	7	17	11	9	63	73.1	49	15.3	2.09	52.8	13.5	0.44	57.9	3	385

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USDA / ARS
WHEAT QUALITY

LOCATION: St. Paul, MN
NURSERY: PY-26

Table 60

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS DISTRIBUTION			NIR HARD- NESS	WHEAT PRO ASH (14% mb)			FLOUR			FALLING NUMBER (sec)			
					A	B	C		EXT	PRO ASH	MIX ABS (14% mb)	MIX PAT						
CHRIS	53.8	24.9	34	16	2	9	12	77	79.6	59	15.6	1.97	60.0	14.7	0.57	57.6	3	389
VERDE	55.3	26.6	54	12	2	8	17	73	75.7	70	14.6	1.78	65.7	13.9	0.50	57.9	3	368
2375	54.9	30.5	56	19	2	4	10	84	94.4	62	14.6	1.79	61.0	13.0	0.48	57.3	3	400
MN97536	59.0	24.5	44	10	17	20	19	44	59.8	12	13.3	1.95	51.0	11.7	0.44	51.6	2	315
MN97541	59.4	26.8	57	5	1	2	4	93	93.9	64	12.9	2.04	60.6	11.7	0.54	56.5	3	326
MN97542	57.0	27.7	56	6	2	8	12	78	83.9	59	14.7	1.70	64.8	14.4	0.45	60.0	4	349
MN97543	58.3	30.4	70	5	1	4	14	81	85.1	76	15.6	1.76	65.1	14.8	0.49	60.5	4	326
MN97544	55.6	28.1	47	10	4	9	12	75	82.2	46	14.7	1.64	65.1	14.2	0.58	59.3	4	400

B-% Semi-Soft

C= % Semi-Hard

D-% Hard

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USDA / ARS
WHEAT QUALITY LAB

Table 61

LOCATION: St Paul, MN		FARGO, ND																
NURSERY:	PY-27	SKWC'S			HARDNESS		WHEAT			FLOUR		MIX		FALLING				
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION	HARD-	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER	(sec)			
			A	B	C	D	NESS	(14% mb)	(%)	(14% mb)	(%)							
CHRIS	58.4	26.5	64	4	1	5	14	80	86.4	70	15.5	2.00	64.2	14.8	0.53	60.3	3	400
VERDE	57.9	30.1	73	3	1	6	23	70	74.7	65	14.4	1.75	67.9	13.1	0.49	57.9	3	271
237375	60.6	33.8	74	2	0	7	20	73	80.9	72	14.3	1.74	66.4	13.0	0.45	59.0	3	400
MN97548	59.7	29.7	49	5	3	7	16	74	79.8	58	15.1	1.75	63.6	14.5	0.52	63.1	4	400
MN97551	61.3	26.9	64	4	1	1	5	93	98.9	69	15.5	1.88	64.2	14.7	0.53	57.6	4	400
MN97553	54.6	23.2	22	16	3	3	7	87	86.0	55	13.6	2.17	66.0	13.0	0.73	57.9	4	400
MN97555	59.4	26.7	29	8	1	4	13	82	85.2	63	15.7	1.98	64.2	14.5	0.52	61.4	5	400
MN97558	60.8	28.2	49	7	0	1	5	94	95.5	85	14.1	1.75	65.1	13.0	0.55	57.9	3	400
MN97561	59.9	27.1	48	5	2	8	14	76	81.1	63	15.6	1.85	67.9	15.1	0.49	61.4	3	400
MN97563	59.0	28.3	67	5	10	9	8	73	75.4	54	13.9	1.74	58.9	12.4	0.47	55.0	2	363

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Table 62

LOCATION: St. Paul, MN
NURSERY: PY-28

WHEAT QUALITY LAB

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			HARDNESS		WHEAT		FLOUR			FLOUR			MIX		
					A	B	C	D	INDEX	HARD- NESS	PRO (14% mb)	ASH	EXT	PRO	ASH	MIX	ABS	PAT	NUMBER	(sec)
CHRIS	55.5	24.6	40	7	2	4	8	86	92.5	66	17.5	2.03	63.6	16.5	0.51	59.6	4	400		
VERDE	56.5	26.3	53	4	1	1	9	89	90.3	72	15.1	2.06	66.0	13.9	0.46	58.2	3	343		
2375	57.2	28.8	51	5	1	4	11	84	87.9	63	16.1	2.06	64.5	14.6	0.51	59.0	4	394		
MN97568	56.2	28.7	63	4	0	1	1	88	82.3	80	15.1	1.95	63.6	14.2	0.47	59.0	4	342		
MN97570	54.4	29.0	46	5	0	1	8	91	83.3	65	15.9	2.17	59.4	14.6	0.53	59.6	4	387		
MN97571	56.1	27.7	58	3	0	2	12	86	85.3	76	14.5	1.91	63.0	13.4	0.43	58.2	3	254		

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 63

LOCATION: NURSERY:	St. Paul, MN			FARGO, ND														
	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	A SKWC'S	B HARDNESS	C DISTRIBUTION	D INDEX	NIR WHEAT	PRO ASH	EXT WHEAT	FLOUR EXT	PRO ASH	MIX ABS	MIX PAT	FALLING NUMBER (sec)		
CHRIS	58.4	24.9	58	5	1	4	12	83	84.7	62	15.6	1.96	64.5	15.1	0.55	57.9	3	386
VERDE	58.1	29.4	73	2	2	3	18	77	76.6	73	14.3	1.73	67.6	13.4	0.43	57.6	3	289
2375	60.3	32.9	70	3	1	6	26	67	77.0	81	14.7	1.67	65.4	13.5	0.45	56.2	2	394
MN97589	59.4	28.3	67	3	16	14	20	50	61.5	41	14.2	1.68	57.5	13.0	0.39	56.5	1	355
MN97596	60.1	26.5	29	14	1	2	10	87	86.7	61	13.9	1.66	62.6	13.1	0.44	60.0	5	400
MN97598	59.8	28.7	47	14	0	2	12	86	91.7	66	15.9	1.87	61.0	15.1	0.47	62.1	4	400
MN97602	60.5	29.2	67	4	0	3	10	87	84.9	80	14.9	1.82	64.8	14.2	0.44	60.8	5	400
MN97603	60.6	28.1	37	12	1	2	5	92	93.5	77	15.5	1.63	59.8	14.5	0.42	60.5	7	385
MN97604	59.0	30.2	70	3	1	3	12	84	82.0	73	15.9	1.86	66.7	15.1	0.46	61.1	7	360
MN97606	59.7	26.1	52	7	2	3	14	81	78.5	63	14.2	1.69	67.3	13.0	0.52	57.6	4	398
MN97607	59.0	29.5	70	4	2	7	18	73	75.1	77	15.6	1.84	64.8	14.6	0.44	58.2	5	354
MN97608	59.1	29.7	73	3	1	2	10	87	81.1	76	15.2	1.81	66.4	14.6	0.45	57.9	5	355
MN97609	59.6	29.9	75	2	0	2	12	86	80.4	81	15.7	1.90	66.4	14.8	0.43	59.3	5	370

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Sem-Hard

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

Table 64

LOCATION: St. Paul, MN		WHEAT QUALITY LAB																
NURSERY:	PY-30	FARGO, ND																
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS HARDNESS			WHEAT		FLOUR EXT	FLOUR EXT	MIX ABS	MIX PAT	FALLING NUMBER (sec)				
					DISTRIBUTION	PRO	ASH	HARD-	PRO									
					A	B	C	D	INDEX	NESS	(14% mb)	(%)	(14 % mb)					
CHRIS	58.9	25.5	59	4	1	6	10	83	80.6	74	14.6	1.74	63.2	14.1	0.43	58.6	4	400
VERDE	57.6	28.8	68	4	2	4	16	78	76.2	77	14.2	1.76	66.1	13.1	0.43	57.9	2	321
2375	60.3	32.5	71	5	1	8	22	69	76.5	76	14.8	1.84	64.8	13.4	0.42	59.0	3	400
MN97611	59.1	29.3	75	2	0	1	9	90	86.1	72	15.7	1.95	67.3	14.9	0.57	60.8	5	400
MN97612	59.0	29.7	73	3	0	1	10	89	89.0	74	15.6	1.86	65.4	14.7	0.43	59.0	4	340
MN97617	60.2	31.3	76	3	1	9	27	63	69.4	74	14.9	1.74	66.7	14.1	0.43	58.6	3	333
MN97623	60.5	30.4	74	2	1	10	25	64	70.4	70	14.2	1.77	65.7	13.4	0.41	57.6	3	292
MN97626	61.0	33.3	80	2	3	7	24	66	70.2	76	14.9	1.99	65.4	13.8	0.42	59.0	4	302

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 65

LOCATION: St. Paul, MN		FARGO, ND														
NURSERY: PY-31		SKWCS			HARDNESS		WHEAT			FLOUR		MIX		FALLING		
VARIETY	TW	KWT	LG	SM	A	B	C	D	INDEX	HARD.	PRO	ASH	EXT	PRO	ASH	MIX
(lb/bu)	(gr)	(%)	(%)	(%)									(%)	(14% mb)	ABS	PAT
CHRIS	59.5	27.4	66	4	3	5	18	74	78.2	73	15.6	1.77	64.2	14.7	0.43	59.6
VERDE	58.2	28.5	75	3	1	5	20	74	75.8	78	14.5	1.82	66.7	13.3	0.43	57.6
2375	60.5	33.3	74	4	1	9	25	65	75.7	73	14.4	1.74	66.7	13.3	0.43	57.9
MN97636	57.0	28.4	50	7	4	6	18	72	73.3	63	12.3	1.76	66.0	11.7	0.50	56.2
MN97637	58.0	32.9	79	2	1	4	18	77	73.9	82	14.4	1.94	65.4	13.3	0.44	58.2
MN97638	58.4	26.8	54	4	1	3	10	86	80.5	92	15.3	1.84	60.7	14.5	0.50	58.6
MN97645	56.7	30.9	64	4	1	5	19	75	71.8	69	15.0	2.04	55.7	13.8	0.47	60.3
MN97649	61.2	28.1	66	4	0	4	18	78	75.5	61	14.5	1.68	64.8	13.9	0.39	60.3
MN97650	59.7	29.7	71	2	2	10	86	81.8	64	15.6	1.89	64.2	14.8	0.39	60.0	
MN97651	59.4	27.1	66	3	1	3	6	90	87.7	75	15.5	1.98	61.5	14.6	0.43	61.4

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

E=% Hard

F=% Extra Hard

G=% Extra Extra Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 66

LOCATION: St. Paul, MN

NURSERY: PY-32

FARGO, ND

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION			NIR HARDNESS			WHEAT PRO ASH			FLOUR EXT			FLOUR PRO ASH			MIX ABS			MIX PAT			FALLING NUMBER (sec)		
					A	B	C	D	INDEX	HARD- NESS	(14% mb)	WHEAT PRO ASH	WHEAT PRO ASH	WHEAT PRO ASH	INDEX	EXT	(%)	(14 % mb)	EXT	(%)	EXT	(%)	EXT	(%)	EXT	(%)	EXT	(%)
CHRIS	59.6	26.1	64	3	2	5	16	77	76.0	76	15.7	1.76	61.1	14.9	0.41	59.3	4	389										
VERDE	58.7	29.4	73	3	1	4	22	73	72.1	91	14.6	1.88	67.0	13.4	0.42	58.2	3	297										
2375	61.1	34.4	69	3	2	9	26	63	68.7	77	14.8	1.79	63.9	13.6	0.40	58.2	3	400										
MN97661	60.6	30.2	79	1	1	19	79	78.0	76	16.5	1.90	64.5	15.6	0.42	60.5	5	378											
MN97664	61.5	28.7	75	2	1	0	10	89	82.4	82	16.2	1.88	64.5	15.6	0.44	60.3	5	366										
MN97665	61.2	30.4	77	2	1	7	21	71	72.6	61	15.4	1.76	65.4	14.7	0.40	61.8	3	378										
MN97668	61.4	28.6	76	3	1	2	13	84	84.3	81	16.2	1.76	66.0	15.4	0.43	59.3	4	393										
MN97670	60.5	28.8	74	2	1	2	9	88	83.1	77	16.8	1.89	64.5	16.1	0.42	60.3	5	378										

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

LOCATION: St. Paul, MN
NURSERY: PY-33

USDA / ARS
WHEAT QUALITY LAB

FARGO, ND

USDA / ARS
WHEAT QUALITY LAB

FARGO, ND

1997 Spring Wheat Quality Report										USDA / ARS WHEAT QUALITY LAB									
LOCATION: St. Paul, MN		NURSERY: PY-33		FARGO, ND										FALLING NUMBER					
VARIETY	(lb/bu)	TW	KWT	LG	SM	SKWCS HARDNESS DISTRIBUTION			WHEAT		FLOUR		FLOUR		MIX		MIX		
		(%)	(%)	(%)	(%)	A	B	C	HARDNESS	PRO	ASH	EXT	INDEX	(14% mb)	(%)	PRO	ASH	ABS	PAT
CHRIS	58.2	25.0	53	4	1	2	13	84	84.2	75	15.8	1.87	63.2	14.9	0.43	60.5	4	389	
VERDE	58.6	27.7	69	3	0	5	15	80	77.3	80	14.5	1.77	67.9	13.4	0.47	60.8	3	309	
2375	60.5	32.9	71	3	1	4	24	71	74.6	80	15.0	1.77	65.4	13.4	0.46	60.0	3	400	
MN97680	59.1	30.2	65	5	47	28	12	13	36.9	19	12.4	1.69	40.4	10.4	0.39	53.2	2	303	
MN97685	59.1	30.1	61	4	0	1	11	88	82.8	80	14.6	2.00	61.1	13.2	0.48	55.8	2	351	
MN97686	60.1	30.5	70	5	1	1	10	88	82.9	78	15.3	1.82	66.4	14.0	0.45	56.9	3	388	
MN97693	60.6	29.8	80	3	0	6	16	78	76.8	76	15.1	1.79	65.4	14.0	0.44	59.0	4	390	

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卷之三

C=% Semi-Hard

D=%

Table 67

1997 Spring Wheat Quality Report

USDA / ARS WHEAT QUALITY LAB

Table 68

LOCATION:	St Paul, MN			WHEAT QUALITY LAB														
NURSERY:	PY-34			FARGO, ND														
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION	HARDNESS	NIR	WHEAT PRO ASH	FLOUR EXT	FLOUR EXT	MIX PRO ASH	MIX ABS	MIX PAT	FALLING NUMBER (sec)				
	A	B	C	D	INDEX	NESS	(14% mb)	(%)			(14 % mb)							
CHRIS	58.8	27.3	67	3	8	13	22	57	68.7	71	15.7	1.81	65.7	15.1	0.44	58.2	3	368
VERDE	58.0	29.9	72	3	2	4	23	71	74.0	77	14.5	1.76	66.7	13.3	0.42	57.9	2	344
2375	58.9	32.5	66	5	2	7	19	72	78.6	75	15.2	1.84	66.0	14.0	0.43	60.0	3	400
MN97694	60.0	25.5	46	9	1	2	7	90	87.4	76	14.2	1.78	61.7	13.3	0.50	59.3	3	398
MN97695	62.2	29.2	75	3	1	8	23	68	72.2	66	15.4	1.70	67.0	14.3	0.39	62.7	5	388
MN97707	60.6	34.1	81	2	62	15	9	14	31.5	7	14.4	2.04	45.6	11.9	0.44	56.5	2	216
MN97712	59.8	27.5	61	4	30	15	13	42	54.5	36	14.8	1.95	54.1	13.1	0.43	58.2	2	219

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

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USDA / ARS WHEAT QUALITY LAB

Table 69

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			WHEAT			FLOUR			FLOUR			MIX		
					A	B	C	D	INDEX	HARD-	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER	(sec)
CHRIS	59.7	27.8	70	3	1	4	16	79	81.8	79	15.7	1.80	64.8	14.8	0.42	59.3	3	400	
VERDE	58.2	29.0	70	3	1	6	14	79	76.1	76	14.6	1.88	67.0	13.2	0.44	59.0	2	314	
2375	60.5	33.4	70	3	0	9	25	66	75.8	71	15.0	1.83	64.8	13.7	0.43	59.3	3	379	
MN97722	60.3	24.6	38	9	15	20	23	42	57.7	8	14.9	1.89	44.8	12.7	0.39	57.3	3	260	
MN97729	57.7	24.3	25	13	2	3	11	84	86.2	46	14.3	2.09	60.7	12.9	0.50	57.3	4	400	
MN97730	58.7	28.4	62	5	2	2	7	89	86.1	77	13.8	1.95	63.6	12.8	0.48	57.3	2	295	
MN97733	58.4	32.4	74	2	48	15	11	26	40.8	6	15.7	1.85	47.2	13.5	0.37	54.6	2	375	
DISTRIBUTION:																			

DISTRIBUTION: A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 70

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS DISTRIBUTION	FARGO, ND			FLOUR EXT (%)	FLOUR EXT (%)	MIX PRO ASH (14% mb)	MIX ABS (14% mb)	MIX PAT	FALLING NUMBER (sec)						
						WHEAT														
						NIR	HARD-	PRO ASH (14% mb)												
CHRIS	58.4	26.1	57	4	1	5	10	84	84.6	72	15.7	1.92	63.0	14.9	0.48	57.6	3	400		
VERDE	57.8	27.6	69	4	2	4	14	80	75.4	77	14.9	1.80	66.7	13.4	0.41	57.6	2	325		
2375	59.8	32.4	74	2	1	4	21	74	78.6	75	15.3	1.94	64.8	13.8	0.51	57.9	4	400		
MN97736	56.2	26.0	64	2	1	6	14	79	76.4	53	15.0	1.92	59.8	14.1	0.48	57.6	3	400		
MN97746	61.1	29.4	67	3	13	16	18	53	65.2	44	14.9	2.25	54.7	13.9	0.47	57.6	3	371		
MN97750	59.4	30.1	78	1	33	26	16	25	46.8	10	15.9	1.97	42.9	13.3	0.43	55.8	2	274		
MN97754	57.2	26.1	52	6	2	5	14	79	75.7	68	14.5	2.05	62.4	13.1	0.62	59.3	3	400		
MN97756	59.9	27.4	70	3	1	2	14	83	81.9	73	14.8	1.97	62.0	13.6	0.50	57.3	2	341		

DISTRIBUTION:

A=% Soft

B=% Seml-Soft

C=% Seml-Hard

D=% Hard

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USDA / ARS
WHEAT QUALITY LAB

Table 71

VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	SKWCS			WHEAT		FLOUR			FLOUR		MIX		FALLING	
					A	B	C	D	INDEX	HARD- NESS	NIR	PRO	ASH	EXT	(%)	PRO	ASH	NUMBER (sec)
CHRIS	59.7	28.6	72	3	1	9	15	75	77.1	82	15.7	1.81	61.3	15.2	0.35	60.5	3	369
VERDE	58.0	28.6	70	3	1	3	18	78	75.6	77	14.6	1.87	64.5	13.5	0.38	58.2	2	311
2375	59.9	32.7	69	4	2	8	20	70	76.9	81	15.3	1.89	62.6	13.9	0.42	58.2	2	400
MN97761	60.0	26.0	54	6	1	3	11	85	77.6	76	15.3	1.68	63.9	14.6	0.35	56.5	3	235
MN97762	59.1	31.4	81	2	21	18	22	39	54.5	33	14.2	1.90	53.3	12.7	0.41	51.9	1	389
MN97773	59.7	29.8	67	4	0	10	19	71	71.0	57	15.1	2.02	57.5	14.0	0.39	55.0	2	314
DISTRIBUTION:																		
A=% Soft																		

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

1997 Spring Wheat Quality Report

USDA / ARS
WHEAT QUALITY LAB

Table 72

LOCATION: St. Paul, MN		FARGO, ND										FLOUR			FLOUR			MIX			FALLING	
NURSERY:	PY-39	SKWCS			HARDNESS		NIR			WHEAT		FLOUR			FLOUR			MIX			FALLING	
VARIETY	TW	KWT (lb/bu)	LG (gr)	SM (%)	A	B	C	D	INDEX	HARD-	PRO	ASH	EXT	PRO	ASH	ABS	PAT	NUMBER (sec)				
CHRIS	60.4	27.1	68	2	2	4	11	83	82.6	81	15.9	1.80	64.2	14.8	0.42	59.6	3	400				
VERDE	59.0	29.0	73	3	1	4	18	77	73.1	75	14.9	1.85	66.4	13.5	0.41	59.0	3	282				
2375	59.2	31.0	67	3	0	7	23	70	73.9	72	15.4	1.86	64.8	14.0	0.42	57.6	3	400				
MN97800	57.2	28.2	61	5	2	6	15	77	77.3	70	14.5	1.87	64.2	13.7	0.46	63.1	3	347				
MN97803	58.4	29.5	64	4	1	6	15	78	77.3	73	15.3	1.87	61.7	14.2	0.46	60.5	3	285				

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USDA / ARS
WHEAT QUALITY LAB

LOCATION: St. Paul, MN
NURSERY: PY-40

FARGO, ND

FARGO, ND

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CHRIS	58.7	26.6	67	4	0	5	13	82	81.7	78	16.1	1.89	61.7	15.2	0.41	61.4	4	343
VERDE	57.4	27.9	63	5	1	4	17	78	72.9	79	14.9	1.93	64.8	13.5	0.41	58.6	3	377
2375	60.0	31.9	65	3	2	6	25	67	75.5	73	15.4	1.97	63.0	13.7	0.42	58.2	3	400
MN97822	56.8	24.9	34	8	1	4	11	84	77.2	57	15.4	2.12	54.6	14.3	0.45	57.3	4	388
MN97835	57.8	24.5	36	10	56	21	11	12	33.3	5	13.9	1.90	32.4	11.0	0.41			337
MN97837	58.2	29.2	65	4	2	5	18	75	72.2	53	14.2	1.87	61.6	12.7	0.47	57.9	3	329

n=0/ e=0/ c=0

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Table 73

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USDA / ARS WHEAT QUALITY LAB

Table 74

LOCATION: St. Paul, MN		FARGO, ND												FLOUR			MIX		
NURSERY: PY-41		SKWCS			HARDNESS			WHEAT			FLOUR			PRO	ASH	ABS	PAT	FALLING	
VARIETY	TW (lb/bu)	KWT (gr)	LG (%)	SM (%)	DISTRIBUTION	HARD-	PRO-	ASH	EXT	PRO	ASH	ABS	PAT	(14 % mb)	(%)	(14 % mb)			
CHRIS	59.2	27.6	70	3	1	7	9	83	85.8	81	15.6	1.97	62.6	14.7	0.43	57.9	3	400	
VERDE	57.4	27.7	67	4	1	4	16	79	76.8	73	14.6	2.03	67.0	13.3	0.46	58.6	3	329	
2375	59.9	35.0	73	3	3	9	29	59	69.7	73	15.3	2.01	63.6	13.7	0.42	57.9	3	400	
MN97846	59.0	29.9	74	2	40	23	12	25	43.7	12	13.5	1.81	42.3	11.4	0.37	51.3	2	325	
MN97847	59.1	28.8	63	3	44	23	19	14	39.6	15	13.6	2.09	42.1	11.2	0.42	52.2	2	290	
MN97849	59.4	29.5	65	2	1	3	11	85	78.6	60	13.2	1.81	61.1	11.4	0.44	53.8	2	387	
MN97852	57.8	29.2	72	3	29	23	26	22	46.5	15	13.9	1.85	44.3	12.1	0.43	56.2	2	316	
MN97853	57.4	31.2	77	2	50	26	12	12	34.9	14	14.0	1.96	43.0	11.0	0.39	53.5	2	287	
MN97854	55.8	27.0	59	5	0	2	8	90	82.0	76	15.9	2.09	60.2	14.6	0.51	58.6	5	400	
MN97855	59.4	31.8	79	2	0	2	17	81	77.2	93	14.8	1.99	64.2	13.6	0.48	59.3	2	400	
MN97856	59.5	30.9	78	1	44	19	12	25	42.7	7	13.5	1.80	45.6	11.3	0.37	51.6	1	319	

DISTRIBUTION:

A=% Soft

B=% Semi-Soft

C=% Semi-Hard

D=% Hard

